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 G E O G L J M C H R S H W M F E R D I N A R H O P I L H W O I R T C I A C K H A I R E  
 R O E R T O R T I E R J W S A J J S A R S L D I E C H A A S E P P S T T H B  
 T I S J A V E O W E J F F W T I N C E W S H W W I L X D I T I W A R C A N A D A  
 D G O R D O N E A N E N ( I A N D ) H B L I R K C R I I N A D N I I F W H  
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 E M D H L G U T A V S I H S S H F F K C D R T I W D W W A F N C  
 L A N D F J C U N N I N G M M I H R I M O S C O T L A N D J I A R H H  
 S C R R M S E A H T Q J A W

## SURGERY OF THE EAR

AMERICA H B E A E B R J I I E T H E A S P N K I I I I R O T T  
 M R O T T W H T L D F C W I N T C A N A D A H W J A N I N C I A N D C J J F S C O T  
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JANUARY, 1918

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# INTERNATIONAL ABSTRACT OF SURGERY

JANUARY 1918

## COLLECTIVE REVIEW

### SURGERY OF THE SPLEEN

By D. C. BALFOUR, M.D., F.A.C.S., ROCHESTER, MINNESOTA

THE spleen is unique in that it is a prominent and predominating factor in a very large number of blood dyscrasias and other pathologic processes and clinical entities. Its extensive role has produced during the past decade a most voluminous literature. In reviewing this literature it was found necessary to omit detailed reference to many isolated case reports which though valuable from a statistical standpoint were not essential to the purpose of this review.

Historically splenic surgery is of unusual interest (Krumbhaar 78 Carstens and others). The statement has been repeatedly made that in ancient times the spleen was removed from athletes to improve their running and although this may be doubted Krumbhaar states that Aristotle suspected that the spleen was not indispensable to life. There seems at least to be no doubt that the spleen was successfully removed from dogs and other animals as early as 1500 and it was common knowledge at that time that animals would live in good condition following removal of the organ. Zaccarelli in 1549 claimed to have removed a spleen from a patient with satisfactory results but most writers of that period do not credit the story. Well authenticated cases however are recorded in the seventeenth century (Clarke Matthia). Browne in 1814 reported probably the earliest splenectomy in this country and the patient was living in good health several months later. From that time splenectomy has been performed with increasing frequency but until the last decade any intelligent classification of the conditions which called for splenectomy had not

been possible. One must admire the courage and the progressive spirit of those who before methods of determining the blood picture were known and in spite of the prevailing opinion that the operation was justified only in cases of serious injury with prolapse of the organ performed splenectomies in patients with splenomegaly and constitutional disturbances (Quittenbaum Spencer Wells 17 and others). The surgery of the spleen was tremendously stimulated by the epoch making communication of Banti (9) in 1894 describing the disease which bears his name. Splenectomy has been at one time or other advocated in a wide variety of diseases and conditions and it will be necessary for the specific purpose of this review to classify these conditions as follows:

1. *Anatomical anomalies and injuries*
  - (a) Malposition and malformation
  - (b) Traumatism
  - (c) Accessory spleens
2. *Tumors, cysts, etc. and new growth*
  - (a) Abscess
  - (b) Anoma
  - (c) Cysts
    - (1) Simple
    - (2) Dermoid
    - (3) Hydatid
  - (d) Sarcoma and carcinoma
3. *Chronic splenomegaly occurring in diseases of bacterial or protozoan origin*
  - (a) Tuberculosis
  - (b) Syphilis
  - (c) Malaria
4. *Diseases in which the spleen has been proved to be the controlling etiologic factor*
  - (a) Splenic anemia
    - Adults
    - Children

- (b) Hæmolytic jaundice  
 Congenital and familial  
 Acquired
- 5 Conditions with which the spleen is intimately associated  
 (a) Hepatic diseases  
 (b) Gastritis and hæmorrhagic fever  
 (c) Thrombophlebitis of splenic portal vein  
 (d) Cholecystitis
- 6 Primary and secondary splenic disease  
 (a) Primary  
 (b) Splenic medullary hæmangioma  
 (c) Splenic infarction  
 (d) Splenic abscess
- 7 Diseases of the blood  
 (a) Primary  
 (b) Splenic medullary hæmangioma  
 (c) Splenic infarction  
 (d) Splenic abscess
- 8 Uncommon diseases of the spleen  
 (a) Splenic infarction  
 (b) Splenic abscess  
 (c) Splenic hæmangioma  
 (d) Splenic aneurysm

## MALPOSITION MALFORMATION AND TRAUMATISM

Malposition and traumatism have been during modern times the indications for the only operative procedures other than splenectomy in surgery of the spleen although Mayo (85) and Froell have surmised the possible value of ligation of the splenic vessels as a substitute for splenectomy in other than the conditions. Efforts have been made for example to relieve the symptoms produced by very mobile spleen by ligating the splenic pedicle (Lan) although in the majority of such cases splenectomy has been chosen. McDonald and Mackay reported acute torsion of the pedicle of a movable spleen requiring urgent operation for the relief of the symptoms. In many cases of left diaphragmatic hernia the spleen is to be found in the cavity of the chest and in chronic cases is often firmly adherent (LeConte Green Balfour).

It is important to remember that a movable spleen can be and has been mistaken for almost every other type of pelvic abdominal and kidney tumor and vice versa.

In traumatism there has been a choice depending upon the extent of the injury between tamponade suture splenectomy or exploration only if the hæmorrhage has ceased. Some important observations have been made during the present war as to the seriousness of injuries to the spleen. Webb and Milligan state that although splenectomy has been looked upon as an operation of high risk in connection with gunshot wounds of the spleen their own experience in some cases in which the mortality was 75 per cent showed that death occurred in those cases in which other organs than the spleen were also injured and that in their cases of injured spleen alone the rate of recovery was very high. The frequency with which the spleen is injured in the experience of Wallace is 54 times in 965 abdominal operations. In 5 instances it was

the only organ injured. The mortality in the group was 50 per cent in uncomplicated cases 63 per cent in complicated cases. He recommends excision only if the organ is totally disrupted or the vessels torn. If hæmorrhage has ceased it is better to leave the organ alone.

Many cases of spontaneous rupture have been reported. Cannaday quote Senator and Litten as saying that the chief causes are trauma and malaria but the accident may occur also in typhus typhoid infarct prægnancy hæmophilia and tuberculosis. Willis quote Johnson and Berger as giving the operative mortality as 5 per cent and the non operative as 90 per cent. He cite Johnson and Gauntler as mentioning pain in the left shoulder as a diagnostic point.

Malignancy of anatomic interest only

## ACCESSORY SPLEENS

Accessory spleens have a very minor importance surgically although Alexander and Pomanes report an accessory spleen causing acute abdominal pain due to torsion of theomentum. The fact that accessory spleens are frequently present (11 per cent of all autopsy Adams and Nicholls) and that they undergo enlargement after splenectomy has been performed perhaps attaches some importance to them as regards their influence in the permanency of results obtained by splenectomy.

## ABSCESS

The occurrence of splenic abscess is not extremely rare. Dege in 1906 collected about 80 cases. Erling in a recent review of the subject shows that the majority of cases occur as a sequence to acute infections such as typhoid malaria dysentery almost all cases of the appendix ulcers etc. A few cases apparently have followed trauma and direct extension from perforation of the stomach or subphrenic abscess.

Various pyogenic bacteria have been isolated. Kuettners experimentally produced abscess in spleen of animal by injection of bacteria and oil into the splenic artery into the substance of the spleen and by traumatizing splenic pulp without breaching the capsule. Erling states that the greater number probably result from infarcts.

The symptoms tend to depend on the location of the abscess. The spleen is usually enlarged. An abscess centrally located probably will not be associated with distinctive symptoms. If the abscess is near the capsule however pain may be present either spontaneous or on palpation. The fluoro scope may demonstrate restricted motion or hypoposition of the diaphragm. There may be an associated pleurisy. Fever is not

constant Federmann reports a case with sub normal temperature Chills occur in many cases and a leucocytosis of 10,000 to 50,000 is usual Edema is seen over lower intercostal spaces in some cases The diagnosis usually can be established by aspiration from which Elting states no bad effects have occurred

The treatment in the majority of cases has been splenotomy and splenectomy Elting describes three routes by which splenotomy may be carried out (1) trans pleural (for abscess of the upper pole associated with subphrenic abscess) by resection of the ninth tenth and eleventh ribs in the posterior axillary line (2) abdominal and (3) retroperitoneal

Prognosis without operation is bad (Federmann) However Doebbelin states that small splenic abscesses are absorbed In 7 operated cases there were 4 deaths 15 per cent

#### CYSTS OF THE SPLEEN

In 189 Andral first described a case of cystic disease of the spleen The incidence of the condition may be judged from the fact that Bircher in 1908 collected in all 54 cases 21 of which were found at autopsy

Cysts of the spleen are usually classified as (1) echinococcus (2) dermoid and (3) simple

Bryan and Fowler and Sherren quoting Thomas place the occurrence of echinococcus cysts of the spleen at about 2 per cent of all cases of echinococcus infection Splenectomy is indicated and the hooklets and scolices can be demonstrated in the cyst cavity Finkelstein in 1914 reported 5 cases in 2 of which splenectomy was performed Dermoid cysts of the spleen are exceedingly rare

Simple cysts may be serous hæmorrhagic or lymphatic (Bircher) and the result of trauma or occlusion of arterioles from amyloid change and ultimate softening of the parenchyma (Boettcher) They are more frequently found in women (24 in 38 cases) Lymphatic cysts are usually multiple and remain small Hæmorrhagic cysts are usually single and large Langhans Dowd and others have described angioma of the spleen Langhans case being of the pulsating type and Dowd's of the cavernous type Boeckelmann described a case of mixed blood and lymph angiomatous spleen in a child of fifteen months in which excision was performed Hæmangioma with later a malignant sarcoma like growth has been reported by Homans Theile and others In 1906 Powers reviewed 31 cases of non parasitic cysts of the spleen collected from the literature and reported one of his own

Small cysts give no symptoms In cases of large cysts the spleen is large in some instances there is sudden pain and fluctuation and pronounced friction rub has been noted A pre operative diagnosis has rarely been made Splenectomy has proved the best operative procedure although puncture splenotomy and cystectomy also have been employed Bircher gives the operative results in 33 cases as follows (1) puncture (by crutery) 6 cases 2 deaths (2) incision and drainage marsupialization 9 cases 1 death (sepsis) (3) resection of cyst 4 cases 1 death (ileus) (4) splenectomy 15 cases no deaths

#### SARCOMA AND CARCINOMA OF THE SPLEEN

Jepson and Albert in 1904 collected 31 cases of primary sarcoma of the spleen and reported the recovery of a girl of 15 following splenectomy for a nodular sarcomatous enlargement of the spleen Council in 1912 collected 4 other cases and added one of his own The types of sarcoma which have been recognized are (1) fibrosarcoma (2) lymphosarcoma (3) small round cell sarcoma and (4) endothelial cell sarcoma There are no characteristic symptoms of primary sarcoma of the spleen Pain has been reported by some authors and a nodular solid tumor is the most significant sign There are no blood changes of value The increase in the size of the spleen may be very slow

The only treatment is splenectomy Deaver Bush and others have referred to the bad prognosis but apparently well authenticated cases of primary sarcoma of the spleen permanently cured by splenectomy have been reported

Carcinoma of the spleen (primary) is much more rare in occurrence even than primary sarcoma in fact Bush states that most writers agree that there never has been a convincing case of primary carcinoma of the spleen reported Smith described a case of metastatic colloid carcinoma of the spleen secondary to malignant papillomatous ovarian cyst removed previously No other evidence of metastasis could be determined at the time of splenectomy but the patient died a few months later from general carcinomatosis The rarity also of secondary carcinoma of the spleen has been the subject of much speculation Chalotow thinks the protective mechanism of the spleen is not due to anatomic or physiologic factors but to ferments in the spleen As Hollister pointed out in advanced malignancy the spleen is usually atrophic and this in conjunction with the fact that all infectious processes are associated with



more or less enlargement of the spleen argues against the infectious nature of cancer

#### TUBERCULOSIS OF THE SPLEEN

The existence of tuberculosis of the spleen with out active tuberculous foci elsewhere in the body has been doubted Bland Sutton for example believing that splenic tuberculosis is always secondary Mayo (88) Halpenny and Franke however have reported cases in which clinical examination could detect no other foci and in such cases the condition could be spoken of as primary in the spleen The spleen is frequently involved in children dying of tuberculosis Hamann in a collection of 428 cases of tuberculosis in children found the spleen involved in 66 per cent while in a large series of cases of tuberculosis in adults splenic tuberculosis was shown in 19 per cent Winternitz in 1912 collected 51 cases of splenectomy for primary splenic tuberculosis Coley in 1848 reported the first case of tuberculosis of the spleen found at autopsy and Monerret in 1859 reported another Burke in 1889 was the first to remove the spleen for splenic tuberculosis

An absolute diagnosis of splenic tuberculosis can rarely be made in the absence of a clear history of an active tuberculous infection elsewhere although Rendu and Widal in 1899 presented what they believed to be a syndrome characteristic of the disease in which polycythemia without leukæmia and cyanosis was the predominating feature Douglas and Eisenbrey confirm the observations of Rendu and Widal citing the case of a man with a red cell count of 8 800 000 in which the diagnosis was confirmed by operation This observation has not had general confirmation however and in the cases which have come to operation in the Mayo Clinic polycythemia has not been present A diagnosis of splenic tuberculosis can be justifiably assumed in the case of a patient with an otherwise unexplained chronic splenomegaly who has a quiescent or active pulmonary tuberculosis Pain over the enlarged spleen may be of some significance in such cases Recently removed a tuberculous spleen from a patient in whom upper abdominal pain chiefly in the left hypochondrium was a most marked symptom and was explained by the operative findings of most extensive adhesions which completely encapsulated the spleen

#### SYPHILITIC SPLENOMEGALY

Splenomegaly is not an uncommon occurrence in early syphilis In children particularly syphilitic splenomegaly is common Carpenter

showing that syphilis is second only to rickets as a cause of splenomegaly in infancy Gummatous affection of the spleen is rare both in children and adults (Still)

Splenectomy has been performed in only a few recorded instances of syphilitic splenomegaly but the results have been conclusive evidence that not only may syphilitic splenomegaly occasionally resist the most advanced antisyphilitic treatment but the disease may be eradicated and the blood picture brought to normal by splenectomy (Coupland Hartwell French and Turner and Giffin 55) Up to July 1916 Giffin found only three cases in the literature and added three cases of operation performed in the Mayo Clinic The cases were characterized by marked splenomegaly anæmia positive Wassermann failure of improvement after antisyphilitic treatment and treponemata in the walls of splenic vessel They showed also distinct changes in the liver and in one at least gummata were present The results in the few cases seem to justify the conclusion that under certain circumstances syphilitic splenomegaly may persist to the point of causing a severe secondary anæmia and if a thorough trial of antisyphilitic measures is ineffective splenectomy should be considered

#### CHRONIC MALARIAL SPLENOMEGALY

The surgery of the chronic malarial spleen apparently has very limited indications chiefly because as Oler pointed out the spleen gradually becomes smaller although it may take months or even years There are very few published results of splenectomy for chronic malarial splenomegaly although Finkelstein advocates splenectomy unless the hæmoglobin is below 30 or 40 per cent and there are less than 2 000 000 red blood corpuscles Jonnesco and other surgeons have removed the spleen a number of times in such cases with gratifying results

#### SPLENIC ANÆMIA

The name splenic anæmia is applied to a group of cases in which splenomegaly and a leucopenic anæmia are the predominant feature Splenic anæmia is considered by many and probably a forerunner of Banti's disease although there seems to be no doubt that it may never progress to the stage described by Banti As an argument that the two diseases are quite distinct this loses its force when the extreme chronicity of the disease is realized Typical examples of early splenic anæmia and of Banti's disease undoubtedly show marked difference for Banti's disease

is featured by many of the symptoms of an atrophic cirrhosis in fact Krull denies Banti's disease as an entity and says it is a form of Laennec's atrophic cirrhosis and that the liver not the spleen is responsible for the condition. Recognizing this difference of opinion the weight of evidence supports the theory that splenic anæmia and Banti's disease are stages of the same disease and the subject will be reviewed on that basis.

Osler (99) describes the disease as an intoxication of unknown nature characterized by great chronicity primary progressive enlargement of the spleen which cannot be correlated with any known cause (primary splenomegaly) anæmia of a secondary type with leucopenia a marked tendency to hæmorrhage particularly from the stomach and in many cases a terminal stage with cirrhosis of the liver and jaundice.

The earliest description of the disease was published in 1866 by Gretscl. In 1871 Wood added materially to the subject. To Banti (9) in 1894 however must be given the credit for the first classical description of the later stages of the disease.

The frequency of the disease is difficult to determine. Many cases especially in the early stages are undiagnosed or masquerading as other diseases. Many reports of individual cases are found in the literature and especially since the successful surgical treatment has been recognized the frequency of the disease has been apparent. In the Mayo Clinic 4 patients have been operated on up to May 1917 and quite frequently cases are seen (particularly in children and in the late stages of the disease) which although quite possibly belonging to the splenic anæmia group cannot be positively classified as such.

The etiology of the disease is not established. Many efforts to isolate a micro organism have been made. Gibson states that the parasitic invasion of the spleen can be shown by special staining methods and that the organism is a streptothrix which cannot be isolated in conditions other than splenic anæmia. D'Espine and others have been unable to confirm this finding. Gibson believes that three facts point to an infective agent (1) extirpation of the spleen cures or alleviates (2) the disease is similar to kala azar and (3) beneficial effects are obtained from salvarsan. Rolleston (108) draws attention to the fact that the cases forming the basis of Gibson's investigation were not typical splenic anæmias but were complicated by various conditions which could well have been primary

for example tuberculosis syphilis and cardiac failure. Hollins believes bacillus coli the only cause. He considers that the anæmia is a hæmolytic type and although no broken down cells are found in the spleen he believes that the bacillus coli is responsible for the hæmolytic. He has shown that bacillus coli has a hæmolytic action on blood cells and lists several of the diseases which may be produced by it. As corroborative evidence he quotes Adams to the effect that bacillus coli is occasionally the cause of hepatic cirrhosis. Warthin believing that splenic anæmia and Banti's disease are not entities states that in all the cases he examined he found a thrombophlebitis of the portal and splenic veins and concludes that this is the primary condition. This theory has not been largely supported by others although an apparently identical syndrome can be brought about by portal or splenic thrombosis (Edens Goldmann Krumbhaar 77). Ledingham speaks of a traumatic factor. Banti's own views were that the spleen was responsible because he always found splenic enlargement preceding the anæmia because he noted certain changes in the spleen itself and because of the therapeutic effects of splenectomy. Hollins in the main believes that the spleen is responsible. He concludes (1) that it produces the anæmia by increase of its function of hæmolysis (Barr) brought about in turn by vasomotor paresis of the splanchnic area (Sutherland and Burghard believe this increased hæmolysis is due to loss of vasomotor control of the splenic artery) (2) that the spleen is the center of a chronic infective process and (3) that the spleen acts mechanically in the production of anæmia (Polleston 108). Sarge points out that inasmuch as the larger part of the splenic blood is delivered to the left lobe of the liver cirrhosis in splenic anæmia should be confined to this lobe but it is not. It is significant that in the majority of cases of cirrhosis the spleen is enlarged and this fact lends strength to the argument that both organs are attacked simultaneously by the same organism. Hollins produced splenomegaly and anæmia in the rabbit by inoculations of bacillus coli. Yates Bunting and Kristjanson have described a diphtheroid organism in the spleens of splenic anæmia. Wilson in repeated examinations of spleens removed from thirty five patients with typical splenic anæmia has not observed any organism.

The spleen shows a very marked fibrosis with atrophy of pulp and malpighian bodies and the picture is characteristic enough to distinguish it from the spleen in pernicious anæmia. Gaucher's

disease and splenomedullary leukaemia. The fact that endarteritis and even patches of calcification sometimes occur in the splenic vein branches explains the friability of these vessels often noted in the operation of splenectomy and the serious operative haemorrhages which occasionally occur. Varicose veins are frequently found at the cardiac and compensatory enlargement of the haemolymph glands has been noted particularly by Dock and Warthin.

The spleen may be very large, its weight varying from 45 gm to 580 gm (Giffin 52).

The symptomatology of the disease has been fully described by various observers. The pleno-megaly, leucopenic anaemia and tendency to various haemorrhages and cirrhosis of the liver are characteristic of the disease. In the early stage the diagnosis will not be confused if the symptoms are pronounced. The blood picture differentiates pernicious anaemia and splenomedullary leukaemia. Syphilitic pleno-megaly recognized by the Wassermann and history, and haemolytic jaundice by the acholuric icterus, the crises of increased red cell fragility and evidence of marked haemolysis. Thrombophlebitis of the portal and splenic veins is associated with the same symptoms and signs as splenic anaemia but is supposed to be accompanied by considerable epistaxis.

As the later stages of the disease become advanced diagnosis becomes increasingly difficult and as has been often pointed out at times impossible. The patient who when first seen exhibits a large spleen, small liver, gastric, intestinal and other haemorrhages and emaciation may be suffering from a primary hepatic cirrhosis or from Banti's disease. The anaemia may not be distinctive enough to warrant a diagnosis of the latter. Moreover, even at operation or post mortem a positive diagnosis cannot always be made at such a stage.

Giffin (52) in reviewing the symptomatology of splenic anaemia in the precirrhotic stage in a series of eighteen cases in the Mayo Clinic showed that in this series there were twice as many females as males and that the average age was 37 years. In other series of cases however males have been in the majority. Osler (97) reporting 13 in 15 cases. In every case the spleno-megaly preceded the anaemia. In one case an enlarged spleen had been present twenty years. The blood showed secondary anaemia with a leucopenia in one instance of 1000 leukocytes. In one case only were the leucocytes above normal i.e. 11000. Haematemesis is considered a frequent manifestation but had occurred in only

5 of the 18 cases. In Osler's it occurred in 8 out of 15. A history of pain was obtained in 12 cases in some of which it was of a more or less acute character. Fever is not an infrequent sign in the later stages but it occurred in only 2 of the early group of 18 cases. Diarrhoea was present in 4 cases. The surgical record shows that cirrhosis was definite in 5 of the 18 cases. Jaundice was noted twice in one case without cirrhosis. Recognizable gall bladder disease was present in 18.5 per cent of the cases.

Krumbhaar (77) discusses Banti's division of the symptomatology into three stages. (1) The pre-cirrhotic stage which lasts several years. Gradually increasing weakness and pallor are noticed with digestive disturbances and abdominal pain which may first draw attention to the large spleen. There is an increase of urobilin and a slight leucopenia. (2) The second stage which lasts but a few months and is characterized by scanty high colored urine containing an excess of urobilin and attacks of dyspepsia and diarrhoea with slight increase in the size of the liver. (3) The third stage that of hepatic cirrhosis with recurrent ascites. As Osler has pointed out it is important to remember in such cases that ascites may occur without cirrhosis. There is occasionally light jaundice and an atrophic liver with increasing emaciation. Krumbhaar also draws attention to the fact that these stages are frequently not clearly defined.

The treatment indicated is recognized by all writers as being clearly splenectomy. In the early stages the risk is not great and the prospect of permanent cure is excellent. The operative mortality up to 1916 in the Mayo Clinic in 31 cases was 9.6 per cent (Baillou 6). This includes all cases and every stage of the disease. The mortality therefore should be under 10 per cent. This figure can be attained if proper appreciation of the indications for the operation is held.

The late results of operation in the early stage are excellent. Giffin (52) reported that 75 per cent of patients operated on during this stage are in good health. The indication for splenectomy in this stage therefore is quite obvious.

In the later stages of the disease the operative mortality is higher and when a case of jaundice and severe haemorrhages mark the development of an advanced cirrhosis the operative risk is at least 25 per cent becoming prohibitive in the terminal stages. Nevertheless in view of the facts that a fatal outcome is certain in the ordinary course of events and that removal of the spleen even in fairly advanced cirrhosis is

followed by apparent cure or at least arrest of the process splenectomy should have serious consideration

#### THE SPLENIC ANÆMIA OF CHILDREN

Anæmia with splenomegaly in children has been the subject of much discussion. Hunter divides such anæmias into three groups: (1) those conforming to the adult type, (2) those with a blood picture showing an increase in leucocyte (between ten and twenty thousand) and in which normoblasts and megalocytes are found, and (3) those with a high leucocyte count many normoblasts. Most writers consider Hunter's third group an exaggerated form of the second group.

The large spleen and the type of the anæmia would suggest the condition while a leucopenia particularly when associated with gastric hemorrhages would warrant a more or less definite diagnosis. Giffin (54) collected five cases from the literature and reports in detail the case of one patient from the Mayo Clinic aged 30 months. Haggard has recently reported another case.

Only four cases of splenectomy for the anæmia of von Jaksch have been collected from the literature the most recent one being by Pool.

#### HEMOLYTIC JAUNDICE

Hæmolytic jaundice is a disease characterized by splenomegaly, non-obstructive icterus and anæmia. Congenital, familial and acquired forms are recognized but it has been the custom in this country to look upon these types as variations of the same disease. Krumbhaar (77) however draws attention to the fact that on the continent the congenital and acquired forms are considered as independent conditions and presents the evidence on which this opinion is based. There are certainly differences particularly between the familial and acquired types which may be shown by diagnostic methods and which may be observed clinically. These variations in type are of the greatest interest and although they have resulted in a temporary confusion they have produced a wealth of exact information which will be essential in their correlation. It will be safe to assume at the present time and for our present purpose that these many types are variations in degree of the same disease and they will be so considered here.

Murchison in 1885 drew attention to the occurrence of chronic jaundice in several members of a family but Hayem is credited with the first description of the disease as a clinical entity. Chauffard made the most important contribution

to the subject from the standpoint of diagnosis in showing the increased fragility of the red blood cells in the disease. Thayer in 1911 gave the earliest description in this country of the symptomatology of hæmolytic jaundice.

Literature dealing with hæmolytic jaundice as a surgical entity especially English literature is relatively scarce in fact Elliott and Kanavel as recently as 1913 presented the first report of splenectomy in this disease that appeared in American literature. They thoroughly reviewed the subject from a surgical standpoint with particular reference to the familial type of several patients they had observed. Giffin (56) in 1917 reviewed twelve cases including congenital, acquired and familial types of the disease in patients operated on in the Mayo Clinic. Peck in 1916 gave a most interesting account of the first patient with the congenital type of the disease operated on in this country (1912). Elliott and Kanavel point out that there were several instances of successful splenectomy prior to the date of the establishment of the clinical entity of the disease (Spencer Wells, 1888; Bland Sutton, 1895).

The relative frequency of the various types is indicated by Krumbhaar (77) in a review of 158 cases of which 51 per cent were familial (43 per cent of these developing after birth), 14 per cent congenital and 35 per cent acquired. These percentages probably represent the frequency of each type better than the statistics of a surgical clinic for a considerable percentage of patients in the familial group are symptomless throughout life as far as general health is concerned whereas those with the congenital and acquired types have symptoms usually sufficiently severe to lead them to seek relief. Of the 17 patients observed in the Mayo Clinic 5 were definitely familial while 6 gave very suggestive histories of familial jaundice (Giffin, 56).

As yet there has not been a successful effort to place the etiology of the disease on more than a speculative basis in spite of the fact that the results of splenectomy prove that the spleen is largely concerned in the abnormal hæmolysis which is the outstanding feature of the disease.

Krumbhaar (77) gives the two chief views: (1) that there is a primary lesion in the blood a dystrophy of the red cell, and (2) that either primarily or indirectly in the spleen there is an exaggerated hæmolytic activity. As Krumbhaar points out the writers who hold the former belief (Widal and others) lose sight of the fact that splenectomy is a specific in the disease. Those who hold the spleen responsible (Minkowski

Eppinger and Banti to believe the spleen actively destroys increased numbers of cells and prepares others for destruction. The fact that splenectomy is followed by return of health in these cases and that the clinical evidence of an increased hæmolytic disappears lends the strongest support to the latter view.

The symptomatology of hæmolytic jaundice is definite and the cardinal symptoms are seen in greater or lesser degree in the congenital familial and acquired forms. The jaundice is chronic and usually of mild degree and is an acholuric jaundice with absence of the itching, petechiæ, clay stool and brachycardia which are associated with jaundice due to mechanical obstruction of the common bile duct. Splenomegaly is constant and may be extreme and the liver is usually enlarged. Anæmia is not constant but is common and may be marked. Krumbhaar (77) collecting 10 cases in which there were less than 1,000,000 red blood corpuscles. The anæmia may simulate pernicious anæmia (von Stejskal) and Chauffard considers that there is an icteric form of pernicious anæmia which when accompanied by diminished resistance and reticulated red cells represents the least compensated form of hæmolytic icterus. Epigastric pain is not uncommon and may be severe simulating gall stone colic and in many cases is due to gall stones. Cholecystitis is probably present in a large percentage of cases and gall stones have been found in 58 per cent (Giffin 56).

Exacerbation of these symptoms together with malaise, headache, enlarged and tender spleen and occasionally fever are characteristic of the disease especially in the acquired form.

In special diagnostic tests the fragility of the red blood corpuscles is of most importance. It is consistently increased in this disease. The urine does not contain bile salts except under exceptional circumstances (during a crisis) but bile pigment is always found in the blood and urobilin in the urine.

An approximation of the degree of hæmolytic may be made by the method of Schneider of extracting the duodenal contents by means of a tube and estimating the quantities of urobilin and urobilinogen. Widal, Abram and Brule find the auto-agglutination test positive in the acquired form and always negative in the congenital or familial form.

The diagnosis of hæmolytic jaundice therefore is usually not difficult and is confusing only in the atypical cases. The close relationship of the disease to Hanot's cirrhosis symptomatically at least is to be remembered (Mayo 89).

Surgical treatment of the disease is clearly indicated if the symptoms are at all pronounced or the crises disabling. Difference of opinion exists as to the treatment of hæmolytic icterus associated with indefinite and infrequent and mild crises. Undoubtedly many such patients live a normal length of life without inconvenience and operation may be justifiably postponed until subjective symptoms become more marked. The indication for operation therefore is dependent largely on the severity of the disease, the frequency of crises, the symptomatic evidence of developing complications and the degree of anæmia present. When the blood picture indicates marked hæmolytic operation should be seriously considered.

The results of splenectomy in the disease are excellent and the collected cases show a lower operative mortality than in any other condition for which splenectomy has been advocated. Elliott and Kanavel in 1915 tabulated 48 cases in which there were deaths. The patients recovering from the operation obtained a symptomatic cure and sufficient time has elapsed in some of the cases to warrant the belief that the change is permanent. Curiously although there was an immediate improvement in the blood picture of all the patients, the increased fragility of the red blood corpuscles which was a constant feature previous to operation did not consistently return to normal (Giffin).

Since the adoption of Schneider's method of estimating the urobilin and urobilinogen in the duodenal contents, interesting observations have been possible. Giffin (56) has shown in a study of the patients operated on in the Mayo Clinic that the quantity of bile pigments which is always increased in the disease just as constantly tends to approximate the normal following splenectomy. Splenectomy gives its most impressive result in hæmolytic jaundice.

#### CIRRHOSIS OF THE LIVER

In the past few years considerable attention has been directed to the problem of the role of the spleen in cirrhosis of the liver. Many observers particularly Rolleston (107) have attributed certain types of hepatic cirrhosis to poisons originating in the spleen. Reference has already been made to the intimate association between spleen and liver in splenic anæmia and to the fact that splenectomy even when cirrhosis and ascites had developed has produced most distinct benefit. This fact together with much clinical and experimental evidence gives the spleen a prominent place as an etiological factor in the group of in-

fectious cirrhoses. The determination of the indication for and the true value of splenectomy under such circumstances is not easy because of the inherent difficulties in both clinical and surgical diagnosis. The strong similarity between the hypertrophic cirrhosis of Hanot and hæmolytic jaundice (as pointed out by Mayo 89) and the difficulty in differentiating certain types of cirrhosis both in the hypertrophic and atrophic stage from splenic anæmia even at operation are well known examples proving the necessity of very careful investigation of this subject.

Eppinger and Ranzi and others have strongly advocated splenectomy in all cases of hypertrophic cirrhosis of the liver when the spleen is large and there is extreme jaundice especially in the absence of a history of alcoholism. Rolleston (107) also states that in cirrhosis due to poisons manufactured in the spleen splenectomy is a logical if heroic form of treatment.

In this country there are few records of splenectomy in cases which were considered primary hepatic cirrhosis. Four cases have been reported from the Mayo Clinic the immediate results of which have been promising.

#### GASTRO INTESTINAL HÆMORRHAGE

To what extent a small or slightly enlarged spleen can be held responsible for some of the cases of otherwise unexplained gastric and gastro intestinal hæmorrhages is not known but there is already sufficient evidence to make it most important to consider diseases of the spleen in these cases of obscure gastric hæmorrhage. Such evidence is furnished by the facts that in certain diseases in which gastro intestinal hæmorrhages are common splenectomy is curative that gastric hæmorrhage may be caused by a distant toxic focus (appendix gall bladder etc.) that the spleen may similarly act as a focus of infection and bring about gastric hæmorrhage either primarily or through the medium of the liver.

In discussing the role of the spleen under such circumstances I (8) reported the case of a patient from whom I removed a slightly enlarged spleen on the assumption that it was the cause of repeated gastric hæmorrhages which had subjected the patient to various operations particularly gastric but had continued to the point of almost costing his life. Hæmorrhage ceased following the splenectomy and the patient has been in excellent health since. Under such circumstances splenectomy could be justified only after the positive exclusion of every other causative lesion or focus of infection.

#### THROMBOPHLEBITIS OF SPLENIC AND PORTAL VEINS

Varying degrees of thrombosis of the splenic vein have been described in connection with splenomegaly and especially in splenic anæmia. This finding has suggested that the condition is an etiologic factor in certain cases of splenomegaly and that thrombophlebitis of the splenic and portal veins occurs as a primary condition that it is a clinical entity and is associated with a rather definite clinical picture in which enlargement of both spleen and liver ascites epigastric pain and possibly a history of traumatism are features. Rolleston (107) suggested splenectomy in such a condition and Tansini and Morone report a case of splenectomy in the third stage of Banti's disease in which the splenic vein and its branches were changed into hard cords. They admit however the uncertainty as to the primary condition although Banti thought it was not a primary splenomegaly.

#### GAUCHER'S DISEASE

Originally considered by Gaucher (1882) as a true neoplasm this disease is now looked on as clinically non malignant. Brill and Mandlebaum showed that the changes found in the spleen were not confined to that organ but that similar endothelial proliferation could be demonstrated both in lymph nodes and bone marrow. They also described certain clinical features of the disease. The onset occurs usually in childhood with a chronic course (average 20 years) although Niemann reports an apparently acute form of the disease. In many respects particularly in the character of the anæmia (of a moderate degree and with a leucopenia) and in the tendency to mucosal hæmorrhages Banti's disease is simulated.

The splenic enlargement is supposed to be greater in this than in other diseases associated with splenomegaly. Krumbhaar (77) states that the disease has been recognized before operation on four occasions once by splenic puncture. It can not be expected inasmuch as there is disagreement among pathologists as to the authenticity of some of the cases reported as Gaucher's disease that the late operative results will be as yet accepted. Krumbhaar for example states that a cure can hardly be expected as the disease is known to exist independently in bone marrow and lymph nodes. Nevertheless patients with apparently substantiated Gaucher's disease are living several years after operation in good health with every indication of a permanent cure.

## PERNICIOUS ANEMIA

The actual and relative value of splenectomy in pernicious anemia is as yet to be proved. The group of patients who have been splenectomized in this country for pernicious anemia during the last three years is sufficiently large to permit conclusions as to the results of the operation but any conclusions as to final results will be acceptable only when a considerable period of time has elapsed since the operation. It is most important however to remember that an investigation of the condition of the patient at the present time is quite useless as a criterion of the effect of splenectomy on the disease itself.

From the available operative results certain facts may be recorded. For instance Krumbhaar (79) has shown that during the earlier experience with the operation the death occurring immediately or within six weeks after splenectomy reached as high as 50 per cent. It soon became apparent that many of these deaths were due not to the inherent risks of the operation but to the condition of the patient. As soon therefore as the unwarranted surgical risks were avoided the operative mortality dropped well below 5 per cent. The more intelligent selection of cases for splenectomy was the result of the recognition of the fact that the operation itself was of little risk in certain stages of the disease and that even if the patient recovered a remission of symptom could not be reasonably expected.

That splenectomy will effect a more prompt and more prolonged remission of symptoms than has been possible under previous methods is the opinion of the majority of those who have been in a position to observe large series of cases (Cabot, Moffitt, Krumbhaar, 79, Giffin, 57, Percy and others). But there is as yet no proof that splenectomy will cure the disease or even bring about a permanent arrest of symptom. Despite encouraging earlier reports it is found a time goes on that in many of the promising cases there are recurrences or that in some instances the patient has died so that the value of splenectomy becomes increasingly dubious. Percy, however, is quite sanguine over the results he has obtained by removing other possible foci of infection particularly the gall bladder and appendix at the same time that he performed the splenectomy.

The present status of splenectomy in pernicious anemia as indicated in the reports from various sources therefore is as follows: (1) The operation has no place in advanced stages of the disease. (2) Under certain conditions the operation

may be justifiably advised i.e. when a patient not beyond middle life gives only a short history of the condition the anemia is moderate in degree the spleen is enlarged the skin icteroid and there is a definitely high hæmolytic. Nothing more than a temporary remission can be promised. (3) Transfusions of blood both before and after splenectomy are a most useful adjunct to the operation.

## SPLENO-MEDULLARY LEUKÆMIA

The results of the surgical treatment of spleno-medullary leukemia in the past have been very discouraging. The earlier operative experience was associated with such a high initial mortality that the operation was practically abandoned.

Warren who in 1911 reported one case of splenectomy for this condition followed by recovery and referred to the 4 cases collected by Hagen with 4 recoveries attributed the enormous operative risk to secondary hemorrhage from the wound. It must be remembered that at the time the unfavorable results were reported splenectomy was performed during the active period of the disease and when the number of white cells was large showing a high ratio to the red cells. There have been since that time isolated reports of splenectomy for spleno-medullary leukemia in some of which the diagnosis was rather seriously doubted (Richardson).

The surgical profession has hesitated therefore to adopt operative measures in this disease but since it has been demonstrated that radium X-rays and benzol exert a pacific although temporary effect on the symptoms of myelogenous leukemia (Billing and others) splenectomy has again come up for consideration. Radium appears to exert the most powerful influence on the spleen and on the blood picture and there have been several cases reported of remission that have been produced by radium in conditions entirely resistant to X-rays and benzol (Ordway, Giffin, 58).

The therapeutic value of these agents being sufficient to bring the blood picture to normal to greatly improve the patient's general condition and to gradually reduce the size of the spleen (in some instances until it is non-palpable) suggested the possibility that removal of the spleen at this stage might have some influence on the course of the disease particularly if these therapeutic agents were used as adjuncts. It has already been demonstrated that under such circumstances splenectomy may be done with a very low operative mortality. In the

Mayo Clinic since October 2, 1916, 17 patients have been operated upon with splenomedullary leukemia in which the blood picture had been first brought to normal by the use of radium X-rays or benzol or a combination of these agents. There have been no operative deaths in this series but we have as yet no knowledge as to the ultimate results of the operation.

#### UNCLASSIFIED SPLENOMEGALY

There are finally a number of cases of splenomegaly which cannot as yet be classified. This group will include (1) simple or idiopathic splenomegaly which may persist for years without any anemia; (2) splenomegaly with eosinophilia, one instance of which is reported by Giffin (53); (3) chronic polycythemia with splenomegaly, a group described by Oler (98); (4) chronic septic splenomegaly in which moderate enlargement of the spleen occurs with anemia; a condition thought to be due to preceding abdominal or systemic sepsis; (5) Egyptian splenomegaly in which there is an acute course with high fever and rapid development of large spleen and liver without evidence of sepsis and without jaundice (one similar case has been reported by Giffin (53) and (6) the tropical splenomegalies *kala azar* etc. which to my knowledge have not been classified and in which as yet surgical treatment has not had an extensive trial.

In conclusion it should be emphasized that in diseases of the spleen it is absolutely essential that the surgeon should realize that physical findings are of minor importance and that a correct diagnosis must depend on the clinician who in turn must in large part rely on the various laboratory findings and special diagnostic methods. In such instances therefore the surgeon takes his cue from the clinician and then adds his opinion as to the advisability of splenectomy, an opinion which will be based on the condition of the patient and the probable benefits that will be gained from the operation.

#### TECHNIQUE OF SPLENECTOMY

The surgery of the spleen is practically confined to splenectomy although ligation of the blood supply may have limited usefulness. The incision usually preferred is in the left rectus. The length of the incision varies with the size of the spleen; is continued upward to within an inch of the costal margin and in the presence of a very large spleen parallels the costal margin to the midline if necessary. Some surgeons (Warren) use a T incision when a large spleen is to be removed. Others speak of the occasional

advisability of rib resection (Meyer). Kanavel (39) recommends elevation tilting of the body by means of sand bags in order to facilitate the operation. The necessity for the best possible exposure is indicated by these various suggestions.

The importance of a careful abdominal exploration is emphasized by Kanavel and others in view of the frequent gall bladder and liver complications in the diseases for which splenectomy is advocated. The essential features in the operation as performed at present in the Mayo Clinic and which I (7) have previously described are as follows:

1. The accessory adhesions and gastrosplenic omentum are separated, divided and ligated. Division of the gastrosplenic omentum frees the fundus of the stomach which comes into view in every instance and must be carefully protected from injury.

The dislocation of the spleen may be accomplished in the majority of instances by stripping the adhesions with the fingers. In a few cases it is necessary to divide adhesions between clamps. After the spleen has been displaced from its diaphragmatic and renal position a large pack may be introduced into the space formerly occupied by the spleen. This pack serves to support the spleen and if it is well placed and left undisturbed until all other steps in the operation are completed will often obviate the ligation of veins of some size which might entail much technical difficulty.

3. The spleen is now carefully elevated and retracted toward the midline and unless accessory vessels are encountered along the posterior border of the pancreas the pedicle may be ligated. The pancreas occasionally comes into the operative field usually over the posterior aspect of the pedicle and in some instances the tail of the organ must be displaced before the pedicle can be ligated. A very exact and safe method is to first carefully expose and individualize the arterial and venous branches in the pedicle from the posterior aspect by dividing the fibrous investment of the pedicle. The successive division of each arterial and venous trunk beginning with the lateral vein on each side of the fan shaped pedicle will permit a very useful mobilization of the spleen, so that the clamping of the central portion of the pedicle which usually contains the splenic artery or its largest branch is very much favored. It is rare that such a method is not feasible and in such event ligation *en masse* preferably by the two clamp method can be carried out. Gerster in 1915 suggested the preliminary ligation of the



arterial supply in order to conserve as much as possible of the blood in the spleen by forcing it out through unclamped veins by manual compression of the spleen. Lockwood recently suggested the use of the method of Lichtenstein, i.e. the reintroduction of the blood which can be expressed from the removed spleen into the patient's veins.

Under favorable circumstances splenectomy is not a difficult or dangerous operation. Many surgeons however have referred to the unexpected and serious difficulties which may be encountered through hæmorrhage either from the pedicle itself or from accessory veins. A methodical operation will minimize such possibilities but not entirely obviate them. Trouble some bleeding is usually venous and can therefore be temporarily controlled by the pressure of a gauze pack until the spleen is removed. Usually such torn veins can be ligated but it may be necessary to leave the gauze pack in place until a few days later. When the bleeding can be controlled with forceps but the vessels cannot be safely ligated because of their friability, the forceps may be left in position. At the end of seventy-two hours they may be loosened and if no oozing has taken place removed in eight or ten hours.

It is therefore of great importance to anticipate such operative complications. This can be accomplished in large measure by the routine of first dividing and ligating the gastrosplenic omentum and all accessory adhesions possible before attempting the mobilization of the spleen.

The danger of injuring the stomach or pancreas has already been referred to and was early emphasized by Mayo (88).

The difficulties in the operation of splenectomy are to some extent dependent on the disease or condition for which the operation is performed. In pernicious anæmia for example splenectomy is practically never attended by technical difficulty. In hæmolytic jaundice the operation is usually without special risk although the spleen is occasionally very large. Splenic anæmia is most frequently associated with high operative risk particularly in advanced stages of the disease oftentimes due as has already been mentioned to the thrombotic changes in the splenic and accessory veins. The same is true in hepatic cirrhosis. In diseases which occur with less frequency splenectomy has no special risks.

The postoperative course of splenectomized patients depends also to a large extent on their condition at operation. For example in the cirrhotic and ascitic stage of splenic anæmia convalescence is protracted and uncertain. If a

patient is a good surgical risk and the operation not of extraordinary difficulty the postoperative course compares favorably with that of any other major abdominal operation.

Of the actual complications it would be expected that left sided pleurisy with or without fluid would occur with greater frequency than in other abdominal operations and this is true.

The occurrence of a rise in temperature on the second or third day in some cases has been the subject of some speculation. Bland Sutton has attributed it to infection in the stump of the pedicle other to pancreatic disturbance.

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# ABSTRACTS OF CURRENT LITERATURE

## GENERAL SURGERY—SURGICAL TECHNIQUE

### OPERATIVE SURGERY AND TECHNIQUE

Aymard J. L. Some Principles of Plastic Surgery Incisions Contour and the Suture  
*Lancet* L d 97 347

The prime factors of artistic work in plastic surgery are the restoration of contour and the correct method of suturing.

The three essentials to bring about a contour as nearly normal as possible are a correct method of incising the skin the manipulation of the deeper structures and the best method of bringing about satisfactory union.

There are two skin incisions the one in which the skin is divided at right angles to the surface and the other upon the slant. In the slant incision the upper flap assumes a curved form and the under one a cone. The skin edge of the upper flap presents an irregular fringe-like appearance due to the series of ridges and holes in the skin. The slanting incision is very suitable for work on the cheek mouth chin and forehead but where the skin is loose as about the eye and neck the right angle incision is more suitable.

To fill up the gap in the deeper tissue produced by the excision of a depressed scar where the depression is slight simple undercutting may suffice. A preferable method is undercutting straight down to the bone and back from the incision thus loosening a block of deep tissue dependent upon the skin flap for its blood supply. These blocks from either side may then be rolled to either and secured with catgut to fill up the gap.

To approximate the skin edge the author uses a mattress horsehair suture which gives a small linear scar.  
V. C. HUNT

Summers J. E. Simple Method of Rectecting the Transverse Colon  
*Surg. Phila.* 971 337

Summers recommends the following operation for resection of the colon in non-malignant disease.

The operator lifts the omentum with one hand sufficiently to recognize the line of junction of its under surface with the upper surface of the colon. With a sharp pointed knife the peritoneum is nicked along this ligamentous line to the desired extent of resection. With a gauze sponge the omentum is freed upward from the transverse mesocolon to the lower border of the stomach, exposing but not injuring the mesentery blood

vessels. The resection of the colon is then done in the usual manner being facilitated by an accurate view from above of each blood vessel in the mesentery. After the completion of the anastomosis end to end or lateral the omentum is made to cover the line of lines of suture of the anastomosis in such a manner as indicated in the particular case.

The author has employed the following technique for the correction of prolapse of the transverse colon based upon the Lardennois Okinczyk Pauchet studies in clinical anatomy. It consists in opening the lesser cavity of the peritoneum as described suturing the transverse colon to the posterior wall of the stomach along the line of its greater curvature thus practically placing the transverse colon in the lesser peritoneal cavity then dropping the omentum forward. In several instances in which the hepatic flexure was not properly fixed by this technique he brought up a piece of omentum to the right of its detachment from the colon and after ascertaining by upward and outward traction the proper position of the flexure sutured this omentum to the parietal peritoneum. When the position of the stomach has appeared to require it he has in addition done a gastropexy.

G. W. HITCHIN

Stok J. H. Certain Technical Refinements in Methods of Intravenous Injection  
*Med. R.* 97 59

Neosalvarsan is given in ambulatory cases each beginning in the hospital at least twenty-four hours. From 60 to 80 per cent of the injections have been salvarsan or arsenobenzol and the remainder neosalvarsan. Strict asepsis is carried out. The reagents used in the preparation of the drug conform to the original Ehrlich criteria or standard modifications. Water re-distilled in Pyrex or Jena glass and boiled is used in all injections. The glassware is boiled in distilled water. Neosalvarsan is given by a slightly modified Ravaut method. Salvarsan is given by the gravity flow. The needles and ampules of salvarsan are sterilized in 95 per cent phenol followed by alcohol and the needles rinsed in re-distilled water. Concentrated solutions of salvarsan are not used. A light breakfast is given and the temperature pulse and respiration are taken before the patient enters the operating room.

The arm preferably the left is prepared with tincture of iodine which is partly washed off with

alcohol. The arm, shoulder and neck should be bare to avoid any constriction which might hold the drug in the vein and favor thrombosis. The light should strike the arm from the side. The patient lies on the table, arm extended at full length at right angles to the body and resting with the palm of the hand on the slanting bedside table. The tourniquet is not tied but held by the assistant who pulls downward on the ends.

Methods of locating and entering the vein and also the syringe technique are given in detail. Close attention should be given to the type and care of needles. Illustrations are given showing the best type of point and the way to sharpen the needle. The gold needle is much in use. For routine syringe injections a 1 $\frac{1}{4}$  inch gold Luer needle of 20 gauge is satisfactory. For minute and delicate veins a steel hypodermic needle  $\frac{1}{4}$  inch long and 2 or 24 gauge is best. It should not be re-sharpened. One minim of a 1 per cent solution of cocaine for local anesthesia is used sometimes. The Schreiber needle and technique of its use is given. In small children the external jugular, anterior auricular or the prominent scalp vein in heredosyphilitics may be used.

A summary of rules is appended to be applied if with either technique a free flow of blood through a needle after introduction or a free flow of fluid into a vein cannot be obtained.

1 Depress the point of the needle without advancing. The bevel may be shut off against the top of the vein.

2 Palpate the point with the free hand. It is easily recognized if it is above the vein.

3 In using a syringe twist the piston in the barrel pulling backward. It may be stuck.

4 Slowly withdraw the point if it cannot be felt above the vein lifting up at the same time. If it has entered the opposite wall it usually comes away with a palpable snap. Then quickly advance again pressing down hard against the arm with the back of the syringe hand and lifting the point to flatten the angle of the needle to the vein.

5 If the above procedure fails twice withdraw the needle until the point is just short of the skin puncture and advance again after repalpating the vein. This is the last resort.

6 If the fifth procedure fails on one or two trials withdraw the needle entirely and do not reintroduce it until satisfied that the point is good and that it is not plugged. Pressure on the vein for five minutes with elevation of the arm while this is being done will often make possible the use of the same vein again.

7 Make no comments audible to the patient regarding the condition of the needle.

8 Never try to inject through a hæmatoma. Use another vein or desist.

9 Never inject and ask if it hurts if there is the slightest reason for suspecting that it will. The injection of a little to find whether the needle is in the vein or not is absolutely inexcusable.

10 Make every effort to have one puncture suffice using the needle in various directions through the same puncture.

CARL R. STEINÆ

### ASEPTIC AND ANTISEPTIC SURGERY

Lawrence J. S. Carrel Treatment of Wounds  
Applied to Civil Practice *Bull. Johns Hopkins Hosp.* 1917 xxviii 294

Lawrence states that the Carrel Dakin method of treating infected wounds depends for its success so largely upon the technique with which it is applied that it seemed advisable to him to write out carefully the various steps paying particular attention to the bacteriological phase. It is very necessary he states that careful attention be given to the bacterial content which should be regularly ascertained as a guide for the surgeon. Second infection may readily occur after the wound has been under treatment even in the hands of the most skillful attendants and for its detection the bacteriological charts are found more serviceable than the temperature records. The method described has been simplified so that it may be used for the treatment of one or many cases in hospitals in the dispensary or office. It is the technique employed in the Johns Hopkins Hospital.

In order to secure satisfactory results from the employment of the Carrel method Lawrence states that it is absolutely necessary that the following points be given the strictest attention. First Dakin's solution must be very carefully prepared according to the formula described by Daufresne. It breaks down readily when exposed to light or air and hence should be kept well corked in colored glass bottles never in metal containers. A preparation more than a week old should not be used. This solution is not a powerful disinfectant but a mild antiseptic. Second this is not a system of drainage but of irrigation. Third a knowledge of the efficiency of the treatment can be obtained only by systematic accurate and careful bacteriological observations.

The steps in the method are as follows. If the wound is the result of an accident and is filled with dirt, shreds of clothing and other foreign bodies all of the debris should be removed with forceps and by scrubbing with green soap and sterile water. A brush can be used for this purpose if necessary. Shreds of tissue that are without a blood supply should be excised. If the injury is a puncture or penetrating wound that is more extensive beneath the skin than on the surface it should be opened so that thorough irrigation may be established. The object is to prevent the multiplication in any part of the wound of the numerous bacteria that were introduced by the accident. In the presence of Dakin's solution when properly made no bacteria can flourish, their development is inhibited while the body tissues are not hindered in their repair work. Phagocytosis as a rule is observed to take charge of the introduced organisms.

Healing of the wound by first intention can be expected in many cases but if the wound is more than six hours old or if there is a chronic sinus discharging pus the problem is more difficult the wound should be thoroughly cleansed foreign bodies removed necrotic tissue cut away and the surface opening increased if necessary in order to secure the best results from the irrigation. A counter opening should be avoided in deep wounds when possible and in penetrating wound the perforation farther from the main injury would be encouraged to close early.

The object is always to secure thorough flooding of the injured tissues at each irrigation. To help insure this a certain type of rubber tubing with a caliber of about 4 mm. is used for irrigation. It is tied off at one end and perforated at the end with from eight to twelve holes made with a No. 4 leather punch the first hole being placed as near to the tie as possible and the other arranged parallel and about half an inch apart.

The irrigation should be sufficient not more than flood the entire wound although the wound is washed at each irrigation but care should be taken not to use so much that the outer dressings or the bed become wet. The irrigations should be made every two hours. A longer interval permits the dressing to dry in some instances thus giving an opportunity for bacterial development. The shorter interval results in too great a flooding of the wound and in some patients an irritation of the skin from wet dressings.

The continuous drip the author found to be undesirable. Under no condition should the dressing be removed by any but the attending surgeon and then only under the strictest antiseptic conditions usually one dressing a day is sufficient and when the wound is almost healed the dressing may be done at two day intervals if the surgeon is pressed for time. From the beginning the wound should be treated as a sterile wound. Only the most accurate aseptic technique will succeed. Re-infection is always possible either with the same or with different organisms. This danger cannot be emphasized too forcibly for while the re-infection may not be accompanied with clinical symptoms yet the implantation of new organisms reproduces the complex conditions of combined infections and postpones the date of recovery.

The more nearly every wound was treated as though exposed to infection the more satisfactory were results found to be. The irrigation may be done by a nurse without disturbing the patient even while the patient sleeps at night and this two hourly interval must be observed throughout the 48 hours. To protect the wound from infection by organisms on the skin and also to protect the skin from irritation by Dakin's solution the author suggests the use of strips of gauze about four inches wide previously steeped in sterile vaseline and peric acid with which he covers every part of the skin about the wound but not any of the wound or the granulating surface. The hair in the neighborhood of the wound is kept closely shaven.

On every other day Lawrence considers an inspection necessary of the bacterial content both as to number and variety. No irrigation is permitted for at least two hours preceding this dressing. With a sterile platinum spatula a bit of material is taken from the most serious part of the wound or if the wound is large and deep several specimens are taken from various points. The spatula must be sterilized each time just before it is applied to the wound. The material is placed in a thin film over a glass slide and allowed to dry. The film should not be touched until it may be used for examination. In the laboratory the films are stained with methyl blue and examined with an oil immersion lens. A return examination is expected will account in the future for the field of a certain duty.

The field should have the pencils arranged in regular layers and in forms covering the whole field. The number and variety of organisms are noted. The notes of large and small bacilli, coccilli and streptococci the author considers a sufficient limitation as to variety. In counting the pay attention to variety but count the organisms as a whole. If there are a hundred microorganisms in the field he estimates a second and third field and if the too high a number the count is said to be infinity and no further examination is necessary. If however the result is fewer than 100 organisms in the field then he either fields a different part of the field or examines the total content of all the fields aged and thus averages the number. If the bacterial content is even poor perhaps only on one or two fields at least in the field is examined then the count is less than the 20 more fields examined.

The greatest advantages of the Ca-rel method of irrigation of infected wounds are summed up as follows. It is completely effective in the extension of the infection, it is an almost immediate drop of temperature and brings about the patient's pus eliminated and dressing implied. An early opportunity is given for surgical repair work. The production of catarrhal sinus is minimized and the interference with function of the part is less after the recovery of the patient. Finally it is a simple and intelligent method of observing the process of healing in wounds and determining the efficacy of treatment.

G. R. E. B. B.

K. Hock, T. H. A. M. The Method of Applying Antiseptics to the Deep Parts of Wounds. *L. J. L. d.* 97 345

The multitude of septic wounds at the present time has led to the use of a variety of antiseptics and many methods of application.

The perforated tubes used in the Ca-rel method have certain disadvantages. If the much resistance to the exit of the fluid in the deeper

part of the wound the solution finds its way out through the openings nearer the surface of the wound and the deeper parts are not bathed. These tubes also act as drains and pus finding its way into them through the openings is washed back into the wound with the fluid. Movement of the patient is also apt to cause the tubes to be drawn out of the wound.

To obviate these disadvantages the author uses a tube 8 to 10 inches in length and of the caliber of a No 8 catheter. The end is closed with a ligature and a small oblique incision is made with scissors as near the closed end as possible making a small valve with apex directed toward the closed end and at its base dividing one third of the circumference of the tube the more oblique the incision the better.

This incision acts as a valve opening under slight pressure from within the tube and preventing any regurgitation of pus or irrigated fluid. The tied end of the tube should be inserted to the depth of the wound and the free end left projecting through the dressing one or two tubes sufficing for most wound.

In cases of perforating wounds of the limbs or wound with two openings the tube is ligatured at its center and a valve cut on each side of the ligature pointing toward it. The tube is passed through the wound and irrigation carried on from both ends.

To secure the tubes in position the author recommends a small independent incision through the skin near the edge of the wound just large enough to grip the tube without occluding its lumen through this the free end is drawn after the tied end has been inserted to the bottom of the wound. The free end of the tube are left outside the dressing and irrigation is carried on with a glass syringe.

The author has had very gratifying results by injecting 1 to 2 drams of 1 in 1000 flavin twice in 4 hours. He believes that some of the best results were obtained where the drainage from the wound was not free the antiseptic fluid being then brought in contact with all points of the suppurating surface.

V. C. HUNT

#### Turner P. and Richardson G. The Treatment of Wounds Infected with *Bacillus Pyocyaneus* *Br J M J* 1917 11 421

*Bacillus pyocyaneus* infection at the front is fairly common. The infection may be primary, the pus being bluish green from the onset, or it may become infected later when the wound has apparently begun to granulate. It may develop secondarily from infected instruments, apparatus, etc. The suppuration is profuse bluish green and offensive. It may be associated with an intractable diarrhoea presumably from a septicæmic infection of the intestinal tract. While not dangerous to life, healing of a wound is often greatly impeded. Isolation into separate wards practiced in some hospitals is unnecessary if ordinary precautions are taken to prevent contact transmission.

In some cases in which a *bacillus pyocyaneus* cannot be shown the characteristic pus may be due to diphtheria organisms or *bacillus pyocyaneus* may be present but its growth inhibited by other organisms. On the other hand the organism may be present without producing colored pus. It may also disappear suddenly especially in shallow superficial wounds indicating in such cases a low degree of virulence.

In 1915 the wounds were treated with cold eusol solution without much benefit. Hot eusol has since been found to be very effective in superficial wounds clearing up often in 4 hours. The disappearance of the green color is probably due in large measure to the bleaching action of the eusol as it has this action *in vitro* but cultures from wounds in which hot eusol has been used have lost their color and numerous subcultures are necessary and sometimes unsuccessful in restoring color forming properties of the organism.

The eusol is applied in 5 per cent solution as hot as can be endured and changed every four hours. Deep wounds and sinuses may be syringed out twice daily or packed with gauze containing eusol powder and moistened with eusol. C. A. HEDBLOM

#### Sweet J. E. Dichloramin T in the Treatment of the Wounds of War. *J Am M Ass* 1917 11 1076

The chlorine compounds which have been derived from the old Labarraque's solution seem to have given in general the best results in the treatment of wounds of the present war. These chlorine containing solutions variously known as eusol, Dakin's solution and Daufresne's solution have suffered from two serious faults. They are not particularly stable and must be prepared with care. Further these solutions contain so little antiseptic value that they must be frequently renewed in the wound.

This new dichloramin solution is made by dissolving the crystals of dichloramin T in chlorinated eucalyptol and then diluting this solution by the addition of chlorinated paraffin oil. It is best applied by an oil spray, an ordinary hard rubber or all glass atomizer being the most practical method. Metal atomizers are not suitable since the metal is attacked by the chlorine.

This oil solution presents the first great advance in that the dressings do not stick to the wound and the entire act of dressing is relatively painless. The old dressing is simply lifted off and the wound sprayed; the force of the spray will dislodge sloughs and the wound is covered with a fresh dressing.

The solution contains enough available antiseptic so that one dressing every twenty-four hours is ample for large deep wounds and one dressing every forty-eight or seventy-two hours is enough for the simple or more superficial wounds. Since the solution contains so much available chlorine and does not have to be renewed every few hours the use of the Carrel tube is entirely done away with.



Dakin's dichloramin T in solution in eucalyptol and paraffin oil is therefore of great advantage in wound treatment because

- 1 It saves the pain of wound dressing
- 2 It effects an appreciable saving of dressing material
- 3 The amount of solution is of small bulk
- 4 The number of wounds which a surgeon can dress in a given time is far greater than by any other method
- 5 The elimination of the Carrel tube simplifies the dressing, and the problem of transportation of the wounded
- 6 The elimination of the Carrel tube saves the time taken by the nurse for the periodic flushing

EDWARD L. CORNEIL

Smith J. L., Ritchie J. and Ritchie T. A Convenient Method of Preparing Eusol. *Brit. Med. J.* 1917, 386

Eusol may be prepared in the following way according to the authors

Take 135 ccm of the B.P. liquor calcis chlorinatæ dilute with water to 1 litre add 10 grams of boric acid and shake up till dissolved. The solution remains clear and without further treatment is ready for use. If preferred a saturated solution of boric acid may be stocked at room temperature this contains 4 per cent boric acid therefore 250 ccm gives the amount required for 1 litre eusol. In making eusol in this way the 135 ccm of liquor calcis chlorinatæ should be diluted to 750 ccm and the 20 ccm of boric acid solution added. This prevents the formation of the precipitate which occurs if boric acid be added to undiluted liquor calcis chlorinatæ.

Liquor calcis chlorinatæ is a 10 per cent solution of bleaching powder in water this is easily prepared and keeps well. The quantity is calculated on a chloride of lime assaying 25 per cent available chlorine which is about the average obtained from commercial samples.

Should eusol be required for intravenous infection it is necessary to add sodium chloride in the proportion of 8.5 grams to the litre. C. A. HEAL

## ANÆSTHETICS

Elmer W. G. Anæsthetics in Orthopedic Surgery. *N. Y. Med. J.* 1907, 39

The condition of the patient's heart, lungs, kidneys, blood and blood pressure should be ascertained before the operation. Administration of the anæsthetic should not be started until all the preparations for the operation are complete. Nothing is to be gained by keeping a patient anæsthetized while the surgeon is completing an operation on a previous patient. This extra prolongation of anæsthesia may be the determining factor between a normal convalescence and an ether pneumonia or nephritis. Great care should be exercised in and during the administration of any

anæsthetic as death is recorded as having occurred in the case of a child who was lightly anæsthetized for only a few minutes for a tenotomy of the Achilles tendon. The patient was a ten year old boy with a spastic cerebral paralysis.

As a pure anæsthetic chloroform is the ideal one. It has however a higher mortality rate than ether and should be considered a poison. It has a limited field. Ethyl chloride is still more dangerous although as an anæsthetic it ranks with chloroform. The choice therefore lies between ether and nitrous oxide oxygen. The latter in experienced hands is the safest anæsthetic and in several instances has been given continuously for three and one half hours.

In orthopedic operations the patient is kept very lightly anæsthetized so that by the time the operation is about over he is turning his head, opening his eyes and responds when spoken to. The anæsthetic is not continued during the application of a plaster of Paris bandage. The author almost never sees a patient go into shock. In weak children a slight amount of pain may act as a stimulant. But if the pain becomes too severe it adds to the shock.

In operating upon a child with tuberculosis of the spine great care should be exercised in handling the child as under anæsthesia the voluntary muscular control is lost and therefore there is no protection to the spine. An abscess may be ruptured at the seat of the disease, bringing sudden or ultimate death. Even the spine itself may be fractured. The author knows of such a case. The general mortality of this operation is about five per cent. With careful handling the mortality should be reduced about one half. In conclusion the employment of skilled anæsthetists can fulfil handling etc. will result in the saving of many lives annually.

J. J. KURLAND

Cotton J. H. Anæsthesia from Commercial Ether. Administration and What It Is Due To. *C. ad M. J.* 1917, 769

In a preliminary report of his studies on the anæsthetic effect of ether Cotton draws the following radical conclusions

- 1 Absolutely gas free ethyl ether is not anæsthetic
- 2 It acts only (a) as a vehicle for analgesic gases existing as impurities in commercial ether, carbon dioxide, ethylene, etc. (b) as a narcotic stimulant.

A. EHRENFELD

## SURGICAL INSTRUMENTS AND APPARATUS

Butler E. Use of the Aspirator for Removing Pus. Blood, Exudate, Transudate and Bacterial Contents During Operation. *Cliff St. J. Med.* 97, 37

The removal of blood and mucus from the pharynx during operation in the nose and throat by means of some suction apparatus is an accepted

procedure. However the use of suction apparatus by the general surgeon has been neglected. This method of removing blood, pus, exudate, transudate, cyst contents and bowel contents is very practical and efficient.

The apparatus first introduced by Sewall of San Francisco is easy of construction, not costly and is reliable. It consists of an ordinary glass connecting tube the size of a lead pencil, tipped with three-fourths of an inch of fairly stiff rubber tubing. The glass may be bent to any angle. Six feet or more of pliable but not easily compressible rubber tubing connects this tube with a five gallon glass jar. The jar is connected with an ordinary water pump aspirator attached to a water faucet. This gives a partial vacuum of sufficient, even aspirating force to

carry away fluids encountered while operating. The tubing and jar are easily sterilized.

The field for the use of the aspirator is not limited to the nose, throat and the abdomen. Any operative procedure where the wound is deep and the bleeding is free is benefited, such as operations upon malignant growths in the region of the orbit or superior maxilla tumors of the tongue and sub-sternal goiter. In surgery of the long bones where fewer sponges and instruments lessen the likelihood of infection, the aspirator may be used with great advantage.

The aspirator is not heralded as a substitute for sponges, but it has a definite place in surgery and every operating room should possess one.

ISIDORE COHN

## SURGERY OF THE HEAD AND NECK

### HEAD

**Ostrom L.** Depressed Nasal Deformities Corrected by Bone Transplantation. *Illinois M J* 1917  
XVII 169

The author believes that the best operation for depressed nasal deformities is that worked out by Carter.

The nasal cavities are packed with cotton saturated with paraffin vaseline beyond the nasal bone. Incision is made between the upper and lower cartilage in the left nostril. The periosteum over the nasal bones is incised one eighth of an inch from the lower edge all the way from the right to the left side. It is then elevated leaving until the last the attachment over the intranasal suture. The periosteum is cut off close to the bone, care being taken to avoid tearing or splitting.

In the meantime the assistant removes a portion of the ninth rib about two inches of bone and one half inch of attached cartilage. This is split and one half is shaped and adjusted into the cavity prepared for it, the tip of the nose being stretched to admit the cartilaginous end. There is no stretching of the skin or intranasal incision if the transplant is of proper size.  
H J VAN DEN BERG

**Leriche R.** The Syndrome of the Superior Petrous Sinus with Regard to a Case of Dry Jugulo-Carotid Shell Wound. (*Le syndrome du sinus pétreux supérieur à propos d'une observation de plaie sèche jugulo carotidienne par éclat d'obus*). *Lyon chirurg* 1917 LV 728

Leriche relates a case in which a soldier had the external carotid at its emergence and the internal jugular torn by a fragment of shell. The double lesion was unaccompanied by the least hematoma. The man was operated three days after injury and the injured vascular segments which were embedded in pus were resected. The postoperative course was regular until the twenty fourth day when a curious

complication arose. The patient had taken a walk in the sunlight and suddenly experienced a severe and rebellious neuralgia of the trifacial nerve followed six days later by a purulent discharge from the left ear. A thorough examination of the ear and mastoid region gave negative findings. Meningitis symptoms appeared and the patient died in coma.

Postmortem examination showed a suppurative phlebitis of the coronary sinus in communication with the brain membranes. The cavernous sinus and the petrous sinuses were intact.

Referring to the anatomical relationship of the superior petrous sinus with the trifacial nerve and tympanic cavity, Leriche believes that the trifacial neuralgia and the aural symptoms may be satisfactorily explained as venous stagnation of the petrous sinus and may represent the clinical features of a disease of the superior petrous sinus which as far as he knows had not yet been isolated.

W A BRENNAN

**Bennett N G.** War Injuries of the Jaws. *Practitioner* Lond 1917 XCIV 61

War fractures differ from ordinary fractures by loss of bone involved. Early treatment is often simply palliative. It consists of control of hemorrhage, support of fractured bone and abatement of sepsis. Loose or broken teeth to which splints may later be advantageously attached are left in place.

The ultimate treatment depends on the site and extent of injury. With loss of bone exceeding three quarters of an inch, bone graft will be necessary. It is not desirable to sacrifice normal position to obtain bone union.

Various appliances are used for reduction and immobilization. Some are applied to one jaw only, usually the mandible; some include the opposing jaw and are used when lateral deviation of half the jaw has occurred, while others have an external

appliance firmly fixed to the head for correction of displacement of the maxilla

Of surgical measures there are two possibilities: viz. plating and bone grafting. Plating is seldom used. Bone grafting however has been quite successfully employed. II J VAN DER BERG

Shambaugh G. E. Carcinoma of the Maxillary Sinus. S. G. Clin. Clin. 9, 33

Shambaugh reports the case of a man 60 years of age who complained of a sensation of pressure on the right side of the face. This first appeared a few weeks before examination following a ute head cold. There was no increase in the nasal discharge. He had had a maxillary sinus infection some 40 years previous. There was no external evidence of right maxillary sinus trouble, no nasal discharge of a chronic type and no nasal evidence of sinus infection. Transillumination gave a deep shadow of the right maxillary sinus. A puncture was made in the middle meatus and clumps of thick mucopurulent secretion were washed out similar to that following subdence of an acute sinus reaction. Decayed right upper molars were removed. The Wassermann test gave negative results.

In two months the patient returned with loss of weight and distinct ache in the right eye. The ball was fixed and protruded somewhat and the sight in this eye was gone. Intranasally there was no evidence of trouble. From the unhealed tooth sockets exuberant new bony tissue protruded and microscopic examination of portions of this growth showed it to be carcinoma. The right superior maxilla was removed but the patient died about one week later. CA. I. SEI. E.

Vuughan G. T. Injection of the Gasserian Ganglion for Neurolysis of the Fifth Cranial Nerve. J. S. G. Phil. 9, 18

The author reports three cases of injection of the gasserian ganglion with complete relief at least three months after each operation. He urges a more thorough trial of this method of treatment in cases of tic douloureux because of its comparative freedom from risk and its relative simplicity. The method is suggested by O. Wald and Sicard in 1906 and Pussep in 1910. He made the first though unsuccessful attempt to use it. There may be some question as to whether it should be preferred to the Frazier Spiller operation as the latter preserves the motor functions of the nerve. However, no operation is as safe as injection, only one death has been reported to date and that probably was due to an error in technique. The danger of injuring some of the important structures great but experience shows that even if such injuries are inflicted they do not seriously injure the patient. The author has used 1 ccm of 95 per cent alcohol in his cases. (AT. O. D.)

Holt L. E. Glioscoma Resembling Hydrocephalus in An Infant of Seven Weeks. Am. J. D. Clin. 19, 7, 19

The infant 7 weeks old was admitted to the Babies Hospital New York Jan 16 1917. He was a full term baby of normal labor and had been breast fed to date of admission. The family history was negative. When about two weeks old the parents noticed that the head was enlarging rapidly. A little later the veins of the scalp began to grow very prominent. Both of these symptoms had increased steadily up to date of admission.

The head was asymmetrical with a very large prominence in the left frontal region. The scalp was covered with a network of enormously dilated veins. The skin of the scalp was tense and shining especially over the most prominent portion. The sutures were widely separated. There was slight internal strabismus and occasional nystagmus. The conjunctivæ were normal. There was no evidence of paralysis.

The head continued to increase greatly in size. A spinal puncture showed a fluid under increased pressure containing 0.11 per cmm 63 per cent of these being polymorphonuclears and 37 per cent lymphocytes. The globulin test was positive. Over the frontal eminence the scalp became very tense and thinner until on the eighth day a spontaneous rupture took place. On this spontaneous rupture followed by discharge of cerebrospinal fluid the amount of which probably did not exceed 150 ccm. The rupture followed by a protrusion of brain substance true herniation.

At necropsy the head measured 48.5 cm in circumference. There was a rupture in the scalp and dura though which protruded cranial contents forming a mass 8 by 5 cm in size and weighing 14 gm. The cerebrospinal fluid was but slightly in excess not over 90 ccm being present. The dura showed many punctate hemorrhages. The brain had marked symmetry the left hemisphere being fully three times the size of the right. The tumor mass involved practically the entire left hemisphere. It was a soft lobulated new growth containing in its substance many softened areas many recent hemorrhages and yellow pigmented remains of old hemorrhages.

A microscopic examination of the tumor showed it to be a gliosarcoma. A complete autopsy was made but the examination of the other organs showed no new growths or any other lesions having any relation to the cerebral condition.

ED. A. L. COR. ELL

Hunt J. G. The Open Flap Method of Treating Fracture of the Brain Windings. L. J. Lond. 9, 7, 494

This method based upon sound elementary surgical principle is a unobstructed drainage and minimum interference with the damaged parts at time of operation and during the subsequent weeks of healing.

The first step consists of turning down a good sized flap of scalp with perichondrium sufficient to expose freely the whole area of bone injury. The wound in the bone is enlarged and all depressed fragments removed and in addition a margin of healthy dura surrounding the damaged portion of the membrane is exposed. The wound in the brain and dura is disturbed as little as possible. Foreign bodies if superficial are sought for. When the brain is much damaged the opening in the dura if small should be freely enlarged by radiating incisions.

A strip of iodoform gauze is firmly inserted between the dura and the overhanging edge of the bony hole. It shuts off the general meningeal space from the infected wound and stimulates the formation of the natural barrier of adhesions between the coats of the dura. A loose pad of fluffed iodoform gauze is lightly packed over the whole denuded area.

The scalp flap may then be loosely replaced over the gauze or it may be held down out of the way by one or two silk worm sutures. The outer dressings are of plain gauze moistened with saline or boric solution and should be changed twice daily. The iodoform gauze must not be disturbed for from 5 to 7 days. At this date the hernia cerebri will be found well developed. In none of the cases of hernia was there more than one drop of disc swelling at any stage. The author believes the formation of hernia is due to local increased vascularity, inflammatory oedema and round celled infiltration.

In a large number of cases seen by the author in which the flap was resutured with or without drainage tubes there was a latent period of hopeful convalescence of from seven to ten days followed by a sudden rise of temperature and early death from meningitis. The postmortem showed that the soft necrotic brain matter composing the hernia had spread out beneath the skin flap and had become virulently infected.

The hernia reaches its maximum size about the end of the second week and then slowly recedes so that in four to six weeks it no longer projects above the bony parts and the whole wound will be covered by healthy granulation. The skin flap may then be safely replaced.

The author states that in more than 50 cases of his own knowledge the results as regards life saving and ultimate restoration of function have proved far better by this than by any other method adopted.

V. C. HUNT

#### Kalb O. Ablation of Portions of Altered Cerebral Cortex in Epilepsy. *Deutsche med. Wochenschr.* 191. No. 5

While there is much difference of opinion as to the value of surgical intervention in genuine epilepsy there is general agreement with regard to its efficacy in traumatic and reflex epilepsy.

The author operated in the case of a boy 14 years old who for ten years had been epileptic. There

was a history of infantile cerebral paralysis. During the past year he had two or more fits each week.

Under local anaesthesia the author uncovered the left cortical motor zone and opened the dura. There were no adhesions. On the superficies of the brain or the central anterior and posterior convolutions especially toward the median line and toward the base of the brain there were alterations in the cerebral cortex. There were numerous brown red patches of infiltration containing in certain parts small cysts.

As a complete extirpation of the altered zone would have resulted almost certainly in a total paralysis of the right limb the author proceeded to dissect out from the altered parts small islets varying from the size of a lentil to a pea and for a depth of 5 mm. About a dozen such were removed constituting about two thirds of the altered parts of the grey matter. Islets of normal cortex remained. There was some language disturbance following operation but after a week this as well as the limb paralysis improved. After four weeks the patient could walk with the help of a cane. After one year and a half psychic phenomena have disappeared the general intelligence is better and the patient can walk for some hours.

Although observation for one year and a half is not a sufficient interval to pronounce a definite cure yet the probability of permanent recovery is very great and decidedly encourages the surgical treatment of these cases of cortical epilepsy at an early age particularly when there is a history of infantile cerebral paralysis as in the case reported.

W. A. BRENNAN

#### Walker C. B. The Diagnosis of Pituitary Disorders. *Interst. M. J.* 1917. vol. 81.

The symptoms of glandular disturbance result from disturbed secretions of one or both parts of the gland. The anterior portion is chiefly related to factors of skeletal development while the posterior lobe is most closely related to metabolic processes and the deficiency leads to noticeable increase in sugar tolerance with a tendency to adiposity, subnormal temperature, somnolence, dry skin, polydipsia, polyuria, loss of hair and characteristic psychic disturbances.

Functional excess or administration of extracts causes loss of flesh, intolerance for carbohydrates, even spontaneous glycosuria and moist skin. Moreover secondary derangements to other glands occur more noticeably in the genital organs. Certain types suggest functional hyperplasia of one lobe with lowered activity of the other or at one period over activity and later deficiency of both lobes. Thus pronounced acromegaly may show in a later stage a tendency to put on weight, high sugar tolerance, somnolence, subnormal temperature and anaphrodisia etc. while in earlier stages or in exacerbations of the disease there is apt to be a reverse picture, active metabolism, glycosuria, aphrodisia or hypertrichiasis.

etc. Again in the type of Froehlich there is a primary and chronic lowering of activity of both lobes. In this type of case the symptoms date from preadolescence the stature is small, small because of anterior lobe complications while adiposity genital dystrophy imperfect secondary sexual characteristics lowered metabolism etc indicate posterior lobe obstruction.

Cushing also has described such case with adiposogenital dystrophy accompanied by skeletal overgrowth. An internal hydrophalus pressing on the posterior lobe and depressing its activity but apparently stimulating the more protected anterior lobe seems to be the exciting cause.

Although very demonstrative at onset of the enlarged sella turcica is a very reliable diagnostic point in determining the presence of strumous tumorous or hyperplastic condition of the hypophysis it should be noticed that many cases of dyspituitarism especially in the last two groups discussed may show no enlargement of the sella and yet may have a supracellar or intrapeduncular or even a more distinct tumor giving glanglular or oculo-fidular manifestations without distorting the sella.

While the common type of field defect accompanying hypophyseal growth is a bilateral hemianopsia this or the tendency to retrocus only about twice as often as homonymous hemianopsia or the tendency to retinotrophic up of cases. There are also many cases which become blind in one eye and have temporal hemianopsia in the other. Unusual sellar changes occur which resist all attempts at lassaration. It must be remembered that thyroidal dysphoidaldisease may produce central otomata and cleopfield defects and that glaucoma may also temporarily scotomata and effects between the macula and the blind spot.

True primary optic atrophy is rare in scotomata must also be differentiated from central scotomata.

### NECK

Hagerty J. F. Oration in Surgery Observations on the Thyroid Gland. J. M. S. A. J. 97 341

The author calls attention to the fact that the thyroid gland though small and occupying an exposed position at the front of the neck exercises a powerful influence upon the growth and well-being of the individual and that the secretion of this gland when altered or changed have a serious effect on the health and frequently cause minimal changes which result in lethargy. Normally about one fifth of the blood supply of the head goes to the thyroid gland and this supply is reduced to one fourth in cases of hyperthyroidism.

In spite of the fact that the thyroid has been studied since 1880 its true function and its relation to other glands of internal secretion is not yet definitely known. The thyroid begins as an evagination of the epithelium of the alimentary canal. This is a downgrowth from the pharynx which

develops at junction of the posterior and middle thirds of the tongue from which the bilobed thyroid is developed. The site of thyroidanlage evagination is marked by the position of the foramen caecum. Various abnormalities may occur such as a persistent thyroglossal duct and isolated masses of thyroid tissue which are frequently found along the trachea and bronchi.

It is known that the thyroid manufactures an internal secretion the absence of which causes a lack of mental and physical development. It is also known that the drinking water derived from certain geological formations may cause a disordered function of the thyroid while boiling of the water renders it propitious in goiter cases. This indicates that hyperthyroidism is an infection due to living organisms rather than the result of a mineral poison. Ross has stated that while bacteria can be cultivated from rushed tissue of diseased thyroids yet infectious strumitis is very rare.

Hyperthyroidism is thought by some to be due rather to a perversion of function than to an increase of normal function. The degree of increase is not always proportionate to the size of the gland many of the serious cases showing slight if any enlargement. It is stated that 2 per cent of adenomata and 5 per cent of colloid goiters subsequently take on the degenerative process. The degeneration of the gland may also cause pressure effect on the trachea. This together with the fact that malignant degeneration may take place would sustain the belief that some form of operative procedure is indicated in most cases.

It is agreed that complete physical and mental rest and the administration of such drugs as tend to relieve nervous symptoms are essential in the treatment of goiter. Seventy per cent of hyperthyroid cases can be cured if isolated and 50 per cent benefited by operation. Various surgeons place the mortality of the operation at 25 to 35 per cent. I. H. Kerr and Chene

Balett G. D. Some Unusual Aspects of Exophthalmic Goiter. C. J. St. J. M. D. 97 34

In exophthalmic goiter attention has shifted somewhat from the field of diagnosis to that of pathogenesis. A considerable number of fairly

marked cases of hyperthyroidism are not diagnosed at first because of the predominance of certain less common symptoms. The author mentions one case. In a young girl aged 21 who had a temperature of 103.4 and a white blood count of 9600 a tuberculosis of the urinary tract superadded to a few faint burn injuries. More careful examination showed a glaucoma. Widals test a negative guinea pig inoculation. It was found that the cystitis as due to the irritation of large doses of urotropin. Prolonged rest creating and the administration of hydrobromide of quinine gave practically complete relief from symptoms. Emaciation of the neck showed a moderately prominent thyroid.

In another case the rapid pulse cardiac palpitation marked tremors and some enlargement of the thyroid suggested at once the diagnosis of hyperthyroidism. Under treatment the patient improved quickly. A year later this patient again presented herself this time with a continuing afternoon temperature as high as 102.5 and a persistent cough. A leucopenia was present. In the absence of other positive findings the patient was again put at rest and all symptoms of hyperthyroidism disappeared. Without a definite knowledge of the first attack one might well have been misled by the temperature chart. The high temperature may characterize different degrees of thyroid intoxication or may be due to an incidental intercurrent infection. If all cases of exophthalmic goiter are of infectious origin the continued fever may be accounted for.

Certain cerebral nerve disturbances in hyperthyroidism may produce symptoms of myasthenia gravis which conditions must be carefully differentiated. The author believes that the parathyroids may possibly play a rôle in the etiology of myasthenia.

P. H. KREUSCHER

**Sarkissiantz A. The Recurrence of Operated Goiter** (A propos de la récidi e du gôitre opéré) *Rev. éd. de la Suisse Rom.* 1917 **XXXVII** 5 5

The author reports the details of 7 cases of goiter necessitating reoperation. The first operation was done according to the Roux technique. He

draws the following conclusions as deducible in the case of nuclear goiters:

1 The anastomoses between the trachea and isthmus and those connected with the œsophageal arteries even after ligature of the trunk of the superior thyroid artery assure sufficient vitality to the rest of the thyroid body after ligature of the four thyroid arteries.

Ligature of the four or five thyroid arteries with or without section of the vessel gives no guarantee against a pseudo recurrence.

3 This ligature causes a very abundant connective tissue formation.

4 The ligature may be followed by a vascular formation often richer in appearance than the normal vessel and in any case very difficult to overcome in a new operation.

5 It would seem that this new vascularization is the result of a process which is proportional to the extent of the operation and to the intensity of the immediate reparatory process.

6 A simple unilateral operation but more complete would give the patient a better chance of avoiding a secondary operation if the question of esthetics is waived.

7 Various combinations of symmetrical or other ligatures do not give different results.

8 Multiple ligatures owing perhaps to the abundance of the newly formed conjunctive tissue predispose to early recurrence taking the form of conglomerate cysts.

W. A. BRENNAN

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

**Elliott T. R. Results of the Treatment of Chest Wounds** *La cel Lond.* 1917 **CXCIII** 371

The author analyzes the after histories in England of 1,000 cases of chest wounds which were seen by him at a base hospital in France during the first two years of the war. The cases consisted of the following groups: Sterile hæmorrhax 80, septic effusion 64, clotted hæmorrhax later septic 3, sterile pneumothorax 6, severe laceration of the lung 6, no effusion 6.

The chief practical points of the paper follow:

1 A sterile hæmorrhax of moderate size i.e. of about 30 ounces will recover as rapidly by natural absorption as by aspiration.

2 The retention of foreign bodies in the chest in aseptic cases does not appear to exert any crippling effect for military service.

3 Cases of infected hæmorrhax that have been drained in France and transferred to England generally recover rapidly and completely. None die and subsequent operations are rarely needed. More than one half can be returned to duty.

4 The late mortality from chest wounds is practically nil in England and it is only 5 per cent

on the lines of communication in France but in the area of the armies it is higher than was at first supposed. About 10 or 15 per cent may die in medical units at an early date from the severity of the injury and about 10 per cent later at the casualty clearing station from complicating sepsis.

5 Among those casualties which develop sepsis within the chest the mortality is very high rising to nearly 50 per cent under the present system of treatment by rib resection and drainage.

6 The old conservative routine of surgical non-intervention except by late drainage finds its justification only in the recovery of those cases of gunshot wounds of the chest which remain non-infected about 75 per cent. The high mortality in those which develop sepsis demands a wider practice of the new prophylactic method of cleansing operations performed at an early hour on carefully chosen groups of cases.

E. B. FREILICH

**Kosmak G. W. Report of a Case of Antepartum Mammary Due to Unrecognized Malignant Disease** *1st J. Obst. N. Y.* 1917 **LXXVI** 444

The author reports a case of antepartum mammary hyperæmia due to secondary carcinoma in the

liver mesentery and mediastinum Both breasts were very large from engorgement tender and painful The veins over the breasts chest neck and arms were markedly enlarged The skin was tense smooth and inflamed There was no fluctuation and nothing palpable in the axillæ The abdomen was slightly distended with gas above the uterus Vaginal examination was negative X ray pictures of the chest showed nothing abnormal in the mediastinum The patient delivered herself spontaneously of a premature child which lived

This case is interesting because of its course and variety Mediastinal abscess aneurysm and sarcoma could be ruled out The author finally concludes that it was primary intestinal carcinoma with rapid extension into the mediastinal glands and tissue Induction of labor when the child became viable would give immediate relief to the mother but the condition appears hopeless

W L BROWN

Berard L and Dunet C **Rebellious Thoracic Fistulae Due to Synostoses (L s fistul reb lles du tho a bloq é) P s m d 9 7 1 545**

The author describes and illustrates several types of callus formed from nuclei of bone chips etc which result after thoracic or scapulothoracic fractures Such a synostosing callus may involve several ribs and form what the author calls a costal callus *en li ette* Such a callus is often infected and cause the infection of the adjacent tissues giving rise to rebellious thoracic fistulae Various modes of dressing curetting or other treatment fail to bring about recovery Surgical intervention by a total resection of all the affected tissues is alone capable of effectively dealing with these fistulae The author describes his technique of incising the superficial and bony tissues and dealing with purulent collections

W A BERNAN

Comber and Hertz **Early Treatment of Septic Pleural Effusions Consecutive to Chest Wounds (T tem t p e ced sep ch m ts ept q de l pl t on é ut fs u pl s d pot n) Brit J Am Sc d l d P 9 7 1 678**

In chest wound showing neither fracture nor effusion the authors have obtained drainage by incision If there is a fractured rib or capula they reduce the fracture and close If there is a small foreign body it is left if the foreign body is of considerable size it is extracted immediately if easily accessible In other cases codrury traction is preferred

If there is pleural effusion which cytological and bacteriological examination shows to be septic a low incision is made under local anesthesia on the posterior axillary line and some centimeters of the ninth rib resected Foreign bodies in the affected area are extracted The pleura is then deinfected by means of an intermittent irrigation of Dakin's solution

Fifteen cases were treated The results are

coveries 11 from pleural abscess and 1 from subphrenic abscess In 3 of these cases there was a subsequent reinfection of the operative wound which had to be disinfected and reclosed This did not prevent complete recovery Great prudence must be used in determining the time of suture It is always necessary to wait until two or three successive examinations show the permanency of the sterilization of the wound before closing

In recorded chronic cases radiocopy shows that the costo phrenic angle is adherent and immobile the diaphragm is raised even in forced inspiration the lung does not penetrate the sinus the thoracic amplitude is diminished etc In early operated cases the thorax preserves its form and almost normal limits radiocopy shows a normal permeability of the lung tissue The value of recovery appears therefore to be very much greater in early operation

W A BRENNAN

Cumston C G **The Clinical Symptoms and Treatment of Hypertrophy of the Thymus Gland M d P & C c 017 c 40**

The clinical symptoms of hypertrophy are (1) functional characterized by respiratory disturbances a persistent dyspnea frequent suffocative spasms usually nocturnal and occasionally spasms of the glottis and stridulous laryngismus (2) physical signs as cyanotic faces increased during paroxysm distended superficial neck veins during paroxysm or on crying forward vaulting of the manubrium abnormal and asymmetrical forward projection of the pectorosternal area and dullness over the latter area Radiography aid in the diagnosis Radiotherapy may be used in the treatment which however is mainly surgical and may consist of exsthumectomy resection of the manubrium and thymectomy with intracapsular enucleation unquestionably the operation of choice

H H FREILICH

## TRACHEA AND LUNGS

Patrik J **Rupture of the Left Bronchus from the Trachea B t M J 9 7 1 359**

The author reports a case in which the patient fell from an empty vice limber who wheel passed over his chest the patient died with a seventy two hours Postmortem examination revealed a profound collapse of the left lung which was acutely hæmorrhagic an acute generalized pericarditis and separation of the left bronchus from the trachea the tear being through the anterior portion to the extent of two thirds of the circumference No bruising or other evidence of injury was present on the skin

H H FRIESEN

Minn F C **Pulmonary Embolism J L P v d 9 7 387**

The author divides cases of pulmonary embolism into three groups (1) immediate death occurring when only a small portion of the pulmonary circuit

culatation is obstructed (2) death caused within a few minutes and due to a complete or almost complete blocking of the pulmonary circulation (3) delayed death the result of an increase by thrombosis of an initial blockage by an embolus of a portion of the pulmonary circulation

The cause of death in either group 2 or group 3 is very evident he states. The mechanism by which death is produced by an embolus which blocks only a small part of the pulmonary circulation group 1 is unknown

The present investigation was made for the purpose of determining this unknown factor a purpose the author has not been able to accomplish as it has been possible to produce death experimentally only by a more or less complete blocking of the pulmonary circulation. However a brief report of the experiments Mann considers may be of value

Most of the experiments were performed under ether anaesthesia and the carotid blood pressure and respiration were recorded. The emboli were sent into the venous circulation through the right femoral vein with the exception of a few experiments in which the left external jugular was used

The emboli employed were of two kinds. One kind was made of paraffin with a melting point of about 43° C. It was found that ordinary Christmas candles offered ideal material for these. By using the different colors it was possible to make each embolus distinctive and thus to tell definitely the relationship between the time the embolus was sent into the circulation and the position in which it was found at autopsy. Furthermore the melting point of the candle was such that it became soft and would readily mold at body temperature but did not form droplets

The other kind of embolus was made from the animal's own blood. The left external jugular vein and the right femoral vein were dissected free for a portion of their course. Blood vessel clamps were placed on them and the exposed portion of the veins was allowed to become distended with blood. It was then gently crushed with a haemostat and after this a few cubic centimeters of tissue extract or blood serum from the same animal were injected into the damaged veins. Under these conditions large clots formed in the vessels very quickly. When the clamps were removed the clots were swept into the circulation the process simulating the detachment of a thrombus in a patient

The general results of all the experiments were the same. It was impossible to produce death or seriously imperil the life of the animal by emboli until the pulmonary circulation was greatly obstructed. Some emboli passed from the femoral vein to a branch of the pulmonary artery without producing any effects either on blood pressure or heart beat. Usually however there was a slight drop in the blood pressure at the instant the embolus passed through the heart. This drop simulated that of a momentary inhibition of the heart. Mann states. Section of the v. a. g. however did not prevent it

and he considers that in all probability it was due to a passage of the embolus through the pulmonary valves. This was quickly recovered from and the blood pressure usually maintained a practically uniform level until many emboli had been sent into the circulation

The first effect of the emboli that Mann noticed was an increase in the venous pressure. The abdominal veins stood out prominently and small veins severed in the operative procedure which did not bleed at the time of section began to bleed after the passing of a few emboli. Later blood pressure decreased in some experiments suddenly in others it fell to zero slowly. The sudden drop was usually found to be due to a sudden blocking of the pulmonary artery while in the gradual drop the emboli had blocked most of the pulmonary branches and blood clots had formed around them. Respiration was unaffected until blood pressure began to decrease. Then it usually increased in both rate and amplitude. The blood pressure usually reached zero before respiration ceased

Mann deemed it possible that general anaesthesia was a factor. To obviate this in a small series of animals the operative procedures were done under local anaesthesia. The results were the same as when ether was employed

In a few experiments the emboli were sent in under sterile conditions. When very many emboli were employed the animal either died on the table or a short time afterward or developed infarction of the lungs. When only a few emboli were employed the animal was not affected

Death from pulmonary embolism Mann states usually takes place in relatively strong patients when they attempt to leave the sickroom at the beginning of convalescence. They are usually active at the time of death. To simulate this condition a strong animal was fasted for several hours and the emboli passed into the circulation immediately after a period of intense exercise. The results of this experiment were also negative

As a result of his experiments Mann found that emboli made of paraffin and the animal's own blood sent into the venous circulation of dogs did not produce death until the pulmonary circulation was practically occluded and the results were the same whether the blood pressure of the animal was normal or depressed by ether or disease and whether the procedure was carried out under ether or local anaesthesia

GEORGE E. BEILBY

Ringer P. H. Analysis of Thirty Cases of Pulmonary Tuberculosis Treated by the Induction of Artificial Pneumothorax. *Am J M Sc* 1917 cliv 380

The induction of artificial pneumothorax aims to compress the lung in an air splint. This air splint consisting of nitrogen gas allowed to flow between the parietal and visceral layers of the pleura. Cases suited for this treatment are either those wholly unilateral or those with severe involve



ment on one side and comparatively insignificant disease on the other

In his work the author has used exclusively the puncture method of Forlani. The procedure has been used in 30 cases. The following results were obtained:

- 1 Complete success in case of 23 per cent
  - Complete success in 100 per cent hæmorrhage in 3 cases or 10 per cent
  - 3 Partial success with treatment still progressing in cases of 6 per cent
  - 4 Prolongation of life for an appreciable period in 4 cases or 13 per cent
  - 5 Failure in 4 cases or 46 per cent
- If headings 1 and 2 are considered together the percentage of successful attempts added to 33 per cent. In the series 4 cases were compared to stop profuse bleeding and 3 of the 4 complete successes. In the fourth a thrombosis as stopped but the patient was discharged cured that death occurred three days later.

Cause as significant failure in 46 per cent of the cases are:

- 1 Pocket formation threatening adhesion so dense as to preclude any appreciable amount of collapse when a small amount of gas injected in 5 cases or 35 per cent
- Adhesions dense as to obliterate plural space in case of 35 per cent
- 3 Compensatory obtained to a decided degree but no result apparent probably because of depressed undisturbed condition in the opposite lobe in 2 cases or 4 per cent
- 4 Development of tuberculous pneumonia on the other side in case of 1 per cent
- 5 Extrusion after obtaining collapse the patient too early died or relapsed in case of 1 per cent
- Adhesions very responsible in 1 per cent of the failure

## PHARYNX AND OESOPHAGUS

Razzabon G. Experimental Researches on Oesophageal Autoplasties (Review of the Spanish literature of 1914-15). *Pol. I. K. M. O.*

The author has already published the results of some experimental work on the possibility of free homoplastic cervical oesophageal grafting. He presents experimental work dealing with the possibility of performing extensive losses of the oesophageal walls by means of free autoplasmic grafts of fascial muscular peritoneal trip. The experimental work has been done on dogs. A median laparotomy was done and strips through the recti muscles taken comprising peritoneum, aponeurosis and some muscular fascia. A part of the oesophageal wall was resected and the breach filled with the autograft mainly sutured with very fine silk. The strictures and postoperative precautions were observed. Eight experimental tests were made.

From the results the author thinks that in the cases where an attachment of the autoplasmic grafts

was verified the result must be interpreted as an indirect phenomenon. The experimental results cannot in truth demonstrate the persistence of the vitality of the transplanted tissue but point rather to a probable autolysis. There can be demonstrated in activity and a profuse andervascular connective tissue growth from the healthy oesophageal wall tending to invade the graft which apparently at present only.

But in reality it can be affirmed that a large loss of cervical oesophageal substance such as is not susceptible of repair by simple suture can be satisfactorily filled with a free autoplasmic graft of fascial muscular peritoneal strip which on long time renders the reintegration of the continuity of the pharyngeal wall possible and which allows follow-up more or less accentuated degree of tone. This however is not ordinarily sufficient to impede or at least to render sufficient the digestion of ordinary food.

W. A. BREWER

Friedman J. Costello A. and Hirsch A. C. Report of a Case of Huge Dilatation of the Oesophagus. *Ann. N. Y. Acad. Sci.*

The author reports a case of marked dilatation of the oesophagus in a 45-year-old man who had been troubled for eight years with gurgling on food and difficulty in eating and more or less abdominal distention. X-ray examination revealed enormous dilatation of the marked retention of food and a high level of the diaphragm. Attempts at dilatation with dilators and olive bismuth tube failed. The patient died. The postmortem findings confirmed the diagnosis of oesophageal dilatation of the pharynx and the lower oesophagus.

The author lists the results of the case (1) the dilatation of the oesophagus (2) the ability of the thick thread to pass through the pylorus.

H. H. FREI

Derr J. S. Cardiac and Esophageal Malignant Stricture of the Oesophagus. *J. R. A. C.*

The patient complained of dysphagia and a disturbance of the heart thought to be a result of the heart. After a year of treatment with a variety of methods the patient died. The postmortem findings showed a large malignant stricture of the oesophagus. The patient had been suffering from a long-standing heart disease and the oesophageal stricture was probably a result of the long-standing heart disease. The patient died of the heart disease.

oesophagus 30 minutes after ingestion nearly as large as in the first examination. A positive diagnosis of cardiospasm was made at this time and Flummers hydrostatic dilator brought complete relief

after three treatments. A subsequent roentgen examination revealed no trace of the meal in the oesophagus fifteen minutes after its ingestion. The patient is symptomatically well. ADOLPH HARTUNG

## SURGERY OF THE ABDOMEN

### ABDOMINAL WALL AND PERITONEUM

**Marotta R A and Landivar A F** *Cavernous Angioma of the Tendon of the Abdominal Superior Oblique Muscle (Sobre un caso de angioma cavernoso del tendon del oblicuo mayor del abdomen)* *Pr usa méd argent* 1911 107

The authors relate a case of primary cavernous angioma of the tendon of the superior oblique muscle of the abdomen which he states is unique in medical literature. The only case approaching it is one reported in 1897 by Riethus in which there was a secondary angiomatous invasion of the Achilles tendon. In an article published by Weil of Breslau in 1913 mention is made of certain peritendinous angiomata but in no case did the neoplasm invade the tendon which could easily be preserved in the surgical removal of the tumor.

In the case reported by the authors the external oblique muscle of the abdomen showed in its tendinous part a tumor of ovoid form of soft consistency, the size of an almond of clear azure hue and firmly adherent to the tendon in the fibers of which it was intimately merged and not encapsulated. Its surface was irregular due to the presence of a series of nodules of varying size. The case occurred in a woman of 3 years and was diagnosed before operation as a cavernous angioma of the muscles of the anterolateral abdominal wall. Histologic examination verified the nature of the tumor. W A BRENNAN

**Graham M P** *Tuberculous Peritonitis* *J L et* 917 XXXVII 60

Tuberculous peritonitis is either a chronic or an acute inflammation of the peritoneum caused by the tubercle bacillus and characterized by more or less irregular clinical manifestations such as pain fever tympany tenderness and ascites.

The disease occurs as early as three years and as late as seventy years most frequently between twenty and forty. It predominates in negroes. Women are more susceptible than men.

The tubercle bacilli may gain entrance to the peritoneum in five ways: (1) by lymphatics and glands (2) through ulcers of the intestine (3) through the intestine without any demonstrable atrium (4) through the urogenital organs (5) through the portal circulation.

The focus of infection is generally either the appendix fallopian tube lower ileum or cæcum. Tuberculous peritonitis is more common in persons having foci elsewhere in the body.

Pathologically there are three varieties: the acute miliary type with serofibrinous or blood

exudation the chronic ulcerative variety and the chronic fibroid type with many adhesions and thickened peritoneum with increased blood supply and shreds of lymph.

The symptoms are variable; there may be no symptoms until the disease is well advanced. There may be only a languid tired feeling poor appetite and rather full abdomen. In a typical case there is afternoon temperature 101 to 104 night sweats loss of weight large abdomen and usually abdominal pain or discomfort. Tympany is usually present except in cases where the ascites is great.

The diagnosis may be easy or difficult usually aided by evidence of tuberculosis elsewhere in the body. The tuberculin test will help. The acute form must be differentiated from appendicitis strangulated hernia intestinal obstruction and typhoid fever. The chronic forms must be differentiated from cirrhosis of the liver ovarian cyst and cancer of the peritoneum.

The prognosis depends upon the extent of the infection virulence of the organism the resistance of the patient and the amount of associated tuberculous lesions elsewhere in the body. Fifty per cent are cured by medical measures and a large part of the remainder by surgical intervention. The mortality is high in those cases in which a generalized miliary tuberculosis is found.

The treatment whether medical or surgical should be on the general principles of treatment of tuberculosis. The good results of surgery are due to removal of the focus of infection release of tension and extra fluids and stimulation of the peritoneum to greater bacteriolytic activity. Opening the abdomen and emptying it of its fluid aids in the recovery and 60 to 70 per cent of tuberculous peritonitis can be cured by surgery.

Some operators favor operation with drainage others without drainage the majority favor the latter view. From a prognostic standpoint it is important not to get a secondary infection or a fecal fistula. The focus of infection such as the appendix tube etc. should be removed. Kelly recommends four grains of iodoform in the abdominal cavity. Davis uses one ounce of 1 per cent formalin in glycerine.

It is agreed that tuberculin is as valuable for tuberculous peritonitis as tuberculosis elsewhere. There are two methods of controlling its use by the opsonic index and by temperature control. In the opsonic index method the dose is begun very small and doubled each time. It is given daily every second day or semi weekly as long as the temperature rise is not too great and the opsonic index is

increasing In the temperature control method continued small doses are given. It is claimed to be just as effective and more safely administered. St. Clair never went over 300 mg and rarely over 1500 mg. Some give about 2 mg and even as high as 10 ccm have been given. The rise in temperature occurs within forty eight hours after the injection. If there is no fall in temperature after seventy two hours the tuberculin should be discontinued. If the amount of albumin in the urine remains low or decreases the tuberculin dosage can be increased.

Contraindications for use of tuberculin are (1) weak and emaciated patients (2) mixed infection cases of the third stage (3) hemorrhages (4) heart disease (5) marked increase of pulse rate contraindicated its use (6) marked loss of weight with its use (7) complications of diabetes mellitus (cirrhosis) etc.

Peritonitis joint tuberculosis lymph gland and meningitis tuberculous and lupus should be treated with Koch's old tuberculin while pulmonary tuberculosis is probably not so much benefited by old tuberculin.

Mendel advocates a series with tuberculin. Murphy states that tuberculin and the X-ray are the treatment of tuberculous peritonitis in man. Cases. Bandier in 500 cases of tuberculous peritonitis in sputum reports that the sputum was negative in 64.9 per cent of the cases after six months of tuberculin treatment.

Tuberculin acts as a shield to the natural powers of protection. About 0.05 mg of old tuberculin is a safe beginning dose. The dose can be safely doubled till 0.1 mg is reached and then increased cautiously to 1 mg if there is no reaction. The reactions are general febrile and local. The aim is to get the greatest amount of focal reaction without general reaction. A. C. H. T.

**Ruffo V. Surgical Treatment of Tubercular Peritonitis** (Title in the English literature) 636

Ruffo gives a short historical resume of the surgical treatment of tubercular peritonitis. Spencer Wells in 1862 performed the first laparotomy for this condition.

The author gives the details of two cases operated by Salvia in 1804 for tubercular peritonitis. One of these cases was of encysted form. The author reports both these patients now in perfect health.

While surgeons today are all in accord with regard to intervention in peritoneal tuberculosis there is disagreement as to the procedure to be followed whether simple puncture or multiple laparotomy or laparotomy with consecutive peritoneal lavage.

Cecherelli attributes vast importance to lavage and considers it absolutely necessary as it is the fundamentally useful factor in the surgical attack. Ruffo however holds that lavage though not possessing the great value attributed to it by Cecherelli is yet harmless unless substances are

used which upon absorption may be detrimental to the organism. It may be used in every anatomic variety of tuberculous peritonitis and is absolutely indicated in these forms in which purulent effused or circumscribed collections accumulate to such matters. If not yet absorbed these are easily removed by peritoneal lavage.

The author reviews the various substances used in peritoneal lavage also the various anatomic and clinical varieties of tubercular peritonitis. He is inclined to think that operation is indicated in all forms except where the tuberculosis involves the lungs or is spread to many viscera or where the general state does not permit an operation.

W. A. BRANNAN

**Wohl M. G. Carcinoma of the Umbilicus** B. J. U. S. J. 9, 1, 442

The author reports the case of a woman 62 years of age who for about six months had observed a tumor growing at the umbilicus. It had grown to the size of an orange. The patient had been constipated for several years and had been troubled with a good deal of belching but no vomiting. She had lost 20 pounds in weight during the previous six months. The mass which was adherent to the transverse colon was moved on, estimating the removal of 8 inches of the colon. If an oostomy was performed the mass the size of a duck's egg cauliflower in appearance was removed from the sigmoid where it was implanted without involving the intestinal wall. The patient died of peritonitis. Microscopic examination proved the tumor to be an adenocarcinoma. It was secondary in the umbilicus from the intestine. C. R. R. S. I.

## GASTRO INTESTINAL TRACT

**Rehfuß M. E. Gastric Infection** Med. Cl. 1, 9, 7, 333

There are four reasons why the stomach normally resists infection.

1. The acid secretion inhibitory if not actually destructive to bacterial growth.

2. A thin mucoid protection to the mucous membrane serves as a barrier against infection.

3. The organ in health is constantly shifting its contents so that the infected material introduced fails to gain a foothold on the gastric wall.

4. The excessive acidity of the gastric wall with its acidity gives an efficient drainage on all occasions.

Probably the most important single condition which is conducive to infection is the reduction or disappearance of gastric acidity.

The author reports the case of a patient whose chief complaints were sore feet and distention and belching, gaffering but no actual pain, nausea nor vomiting. He had lost 25 pounds during one year. His appetite was poor and he had become obstinately constipated. A few weeks previous a diffuse purpuric eruption had occurred on the arms and legs.

Examination disclosed two important points a more or less generalized purpura particularly severe in the lower extremities and a general tenderness in the epigastrium not confined to any one point and unassociated with muscular rigidity. All the fractional specimens without exception contained large numbers of bacteria practically identical a Gram negative non motile bacillus. The persistence of the presence of organisms in different samples their similarity in each instance the presence of the organisms after lavage and the evidence of direct mucosal disturbances seemed to indicate the stomach is the primary or more probably secondary focus of infection.

The fractional tube not only lends itself to a diagnosis of this condition but it paves the way for a rational treatment. If there is infection two methods suggest themselves i.e. the use of direct disinfection and the isolation of the causative organism and the preparation and administration of a vaccine. Both of these methods have been used by the author and in practically every case he has resorted to the first method. On a few occasions vaccines have been prepared. In one case due to a catarrhal infection the effect was most favorable.

The method of gastric disinfection is as follows. The fractional tube is passed into the empty stomach and the entire residuum removed. The stomach is then irrigated with an alkaline solution of bicarbonate of soda or a weak solution of the various alkaline antiseptics such as liquor antisepticus alkalinus and finally by distilled water. This is followed by the direct instillation of the disinfectant into the stomach through the tube. For this purpose nitrate of silver the colloidal iodide of silver argyrol and protargol is used as well as hydrogen peroxide. The first two have commended themselves to the author. He uses  $\frac{1}{2}$  gr of nitrate of silver in several ounces of water allowing the solution to remain five or ten minutes in the stomach after which part of the solution introduced is aspirated and the rest allowed to remain and exercise a continued action in the stomach.

EDWARD L CORNELL

**Kelly D. Some Notes on Cases of Perforated Gastric and Duodenal Ulcers.** *Med J Aus* 1917 11 163

The author observed ten cases of perforated gastric and duodenal ulcers occurring in males between the ages of twenty four and forty nine. All gave a history of chronic indigestion. The symptoms as stated were associated with periods of remission and all were relieved by the ingestion of soda. Vomiting was not an associated symptom. The perforations were induced by overfilling the stomach with food or drink. Sudden acute abdominal pain was the first symptom followed by rigidity of the abdomen.

Before opening the peritoneum the space above it was filled with saline solution and the peritoneum

was nicked if perforation of any hollow viscus occurred gas was seen to bubble through the saline. In the author's cases the perforations were all on the anterior wall five on the stomach three on the duodenum. The author does not recommend gastrojejunostomy but performs it later if there are indications of obstruction. Excision was not done closure of the perforation by Lambert's suture swabbing out the abdomen and drainage were practiced in his series of cases. One patient had suffered from hiccough for fifteen hours but was relieved after removal of the drainage tube which the author believed produced pressure on the diaphragm.

M A BERNSTEIN

**Wilensky A O. A Consideration of the Causes of Recurrent Symptoms After Operation for Gastric and Duodenal Ulcer.** *Am J U Sc* 1917 cliv 387

All postoperative symptoms after gastroenterotomy for ulcer of the stomach or duodenum are not necessarily caused by the persistence of the original ulcer or the recurrence of it or similar new ulcerations they arise much more frequently from other causes.

Symptoms may be due to disturbances in the physiology brought about by new anatomical arrangements these are usually initiated or aggravated by poorly prepared or ill suited food. Symptoms are also due to disturbances in healing of the stomach badly placed or improperly made stomach or to partial or complete obliteration of the stomach when stomach has been unilaterally excluded.

Symptoms are due also to associated lesions in other organs or to lesions in the spinal cord or peripheral nerves as the vagus. They may also be due to adhesions or hernie in the abdominal cavity or in the abdominal scar.

On the whole these may be classified as arising from an anatomical or functional cause and frequently it is difficult to make the decision before an exploratory operation is made.

**Pauchet V. Surgical Treatment of Gastro Coloptosis (Gastro coloptose traitement chirurgical).** *Rev gén de clin et de thérap* 1917 xxxi 545

While abdominal ptosis may be general a ptosis by descent of the stomach and transverse colon is more frequent. This is the form especially dealt with by Pauchet. It is more prevalent in woman and is principally due to corset wearing pregnancy or thinness. In obesity the abdominal organs are in a state of equilibrium. When fat disappears there is too much space in the abdomen the ligaments stretch and the viscera fall. The gastro coloptosis syndrome — constipation cardiac dyspepsia loss of flesh and neurasthenia is the consequence of the fall of the viscera and is principally due to traction on the solar plexus and on the descended intestine.

The author discusses some types of gastro coloptosis and the pathological conditions which it may simulate.

For the relief of this condition several surgical

method have been suggested viz gastrohepatic suspension, grt omentum suspension and gas tropexy. This last method has been practiced several hundred times by Rossing with encouraging results.

Lauchet has followed Rovsing's method in 25 cases. The abdominal incision is made under local anæsthetic followed by exploration and colic epiploic exposure of the posterior face of the stomach. Fixation of the transverse colon to the large curvature of the stomach is done. The sutures are passed into the wall of the stomach and then into the abdominal wall and fixed. Results have been good in his cases. There is only one death due to acetoneæmia and anuria. Rossing had mortality of 17 per cent. As regards end results both Rovsing and Pauchet found that the results of their patients recovered sufficiently to resume their normal activity. Half cured of constipation by operation. The others managed with gymnastics and paraffin injections have been necessary.

Lauchet concludes that gastropexy gives very good results in the fourth fifth cases. Of the remaining one fourth there is no result, none half and the other half shows some improvement.

W. A. BRAN

Torrance G. Intussusception in Child. *N. Y. J. 97* 4

Intussusception is essentially a disease of childhood. The diagnosis is frequently beneficial from the mother's story. The sudden onset of symptoms vomiting, pallor, listlessness, pain in the abdomen and usually in the first twelve hours the appearance of blood in the stool differentiates this lesion from colitis, the only condition to be ruled out.

X-ray pictures may be used to locate the intussusception. The tumor of the cecum is very often a late finding. The author quotes from Lauderbach says that the condition occurs in healthy and well-nourished children under the year of age. It sometimes follows whooping cough and once it is reported caused by round worms.

In one series of 46 cases a large percentage gave a history of either malodorous constipation or diarrhoea. The author feels that operation should be the only treatment considered. A large series of right resection incision thus exposing the ileocolic junction. Reduction is successful in from eighty to ninety per cent of cases. Various authors are quoted some suggest the suturing of the head of the cæcum to the pelvic peritoneum and ileum to the ascending colon. Other maintain that it is not necessary to take special means to prevent recurrence.

The recurrences are frequent and are found mostly in those cases where the cæcum is not fixed at the time of the previous operation. The mortality is very high in cases operated upon after seventy-two hours.

P. H. KREUZER

Mason J. Diverticulitis of the Large Intestine. *J. M. I. 97* 1178

Portions of the large intestine have been resected for diverticulitis in 42 cases reported by the author. In 36 the sigmoid was involved in one the transverse colon, one the ascending colon, one the hepatic flexure and cæcum, none the rectosigmoid junction and in two the rectum. The diverticula were all of the quadrilateral variety that is the mucous coat pouches through small openings in the musculature. The distinction to true diverticula of the sigmoid, traction or pulsation types in which the intestinal coats cover the sac. The diverticula are multiple and occurred at any weak point in the run of the colon, with such as vesicles, hernia, mucous leaf. From one to eight, the diverticula of the intestine are usually involved although multiple. The strength shows a diverticular tendency. Hereditary diseases of the sac are often found in the distal extremity of the narrow-necked diverticula. Although a rule only one or two of the diverticula are usually responsible for the diverticulitis and the diverticula are usually responsible for the diverticulitis.

The symptoms closely resemble those of appendicitis, inflammation of the diverticula, the difference in the gravity of the infection, the order of the distal side of the diverticula. Altogether probably that most of the reported cases of diverticulitis are examples of diverticulitis. In many cases in read deposit of fat in the diverticula, undoubtedly the diverticula are the cause of the diverticulitis. The diverticula are probably the cause of the diverticulitis. The diverticula are probably the cause of the diverticulitis. The diverticula are probably the cause of the diverticulitis.

In 34 of the 42 patients the tumor was present in the left half of the large intestine, which was attended by diverticulitis, peritonitis and often by intestinal obstruction. In two patients the tumor was found in the right half of the large intestine. In 3 cases the tumor was in the cecum.

Clinically, a group of diverticulitis may be divided into four groups: (1) simple diverticulitis, (2) diverticulitis with diverticulitis, (3) diverticulitis with diverticulitis, (4) diverticulitis with diverticulitis.

Of 42 patients with diverticulitis, with and without carcinoma, the results were as follows: 24 per cent died within five years of the operation. Although the mortality was high, it must be taken into consideration that these patients were usually in poor health and it is often necessary to operate during the stage of obstruction, infection, etc. A large majority of the fatalities occur in the first period when it is believed that the tumor was due to carcinoma and the tendency to spread to the lymphatic system.

It is of great value to be able to differentiate

between diverticulitis and carcinoma in diverticulitis the removal of the mass of tissue which would be essential in carcinoma is not necessary. When a primary resection was made an end to end union was employed but as a rule it was found wise either to suture the anastomosed area well up into the peritoneum and leave the suture line exposed or to pass a folded strip of rubber tissue entirely around the anastomosis to suspend it in the wound as there was a tendency to late infections. Unless provision was made for drainage slowly progressing peritonitis occasionally caused death. To provide against gas pressure a good sized rubber tube was sometimes passed by way of the rectum entirely through and well above the anastomosed area and fastened with a single suture to the anus.

EDWARD L. CORNELL

**Long J W. Acute Appendicitis with Peritonitis**  
Cases that Should Not be Drained. *South W*  
*J* 1911 x 565

The author in discussing this condition calls attention to the fact that as soon as infection invades the appendix the peritoneum immediately begins pouring out a straw colored serous fluid which is rich in antibodies and leucocytes. This fluid being sterile until the infection reaches the free peritoneal cavity.

He reasons therefore that this protective fluid is of real benefit to the patient in helping to overcome infection and its removal takes away a strong protective barrier.

The author hesitates to lay down a fast rule as to when drainage may be omitted but does not consider a gangrenous appendix *per se* a positive indication for drainage he rather depends on the morale of the patient. In very questionable cases he advocates drainage and drainage always in thrombosis of the appendiceal vessels. A large quantity of fluid indicates omitting drainage the character and odor of the effusion being the determining factors.

L. H. HILLS

**Abt I A. Appendicitis in Infants** *Ir J P Dis*  
1917 x 1 641

The author reviews 30 cases of appendicitis in infants under two years of age which he has collected from literature. There were 0 cases under three months of age among which were 2 possible instances of prenatal appendicitis. In children from three to six months of age there were 6 recorded cases. 11 cases in children from six to twelve months. 40 cases in children from one to two years. Of this number 25 were males 8 females and 7 were without record of sex.

Muscle spasm or rigidity of the right rectus muscle may be present early but is difficult to elicit. Nausea and vomiting are usually present a short time before the onset of the pain though these symptoms tend to cease when the stomach is emptied by vomiting. They tend to reappear when perforation occurs when abscess forms or

when intestinal paresis exists. Manifest chill is infrequently noted in the first stage of the disease. Temperature is unreliable. It may be high or in some instances may be subnormal. Pulse usually corresponds to the temperature. Constipation is the rule among the more severe types diarrhoea occurs in the milder types though both conditions may be present one alternating with the other.

Heredity is an etiological factor and it is assumed that in such cases there is a peculiar inherent structural weakness of the lymphoid tissue of the appendix. Traumatism or diseases of the alimentary tract occasionally play a part in the production of appendicitis. It may also occur after erysipelas scarlet fever pulmonary and pleural infections and tonsillitis. Foreign bodies such as worms in the appendix may bear a direct causal relation. The blood examination in almost every case shows a polymorphonuclear leucocytosis. Tenderness at McBurney's point if it can be elicited is of diagnostic importance. When there is palpable resistance on the right side in the presence of other symptoms the diagnosis of appendicitis should be suspected.

E. B. FRILICH

**Hartwell J A. Carcinoma of the Splenic Flexure of the Colon** *Ir J Surg Phil* 1911 LVI 339

After an extended study of the subject of carcinoma of the splenic flexure of the colon or its immediate proximity Hartwell draws the following conclusions:

1 The splenic flexure is the third most common site for the growth of colonic cancer.

2 This growth tends to the production of obstruction with indeterminate premonitory symptoms.

3 This complication occurs acutely in nearly three fourths of the cases coming to operation.

4 A recognition of the foregoing facts and a more careful detailed study with possibly an exploratory operation should lead to an early diagnosis in a majority of the cases and thus forestall acute complication.

5 The probable operative mortality of all cases up to the present time is over 60 per cent and the percentage of the prolonged cures is exceedingly low — 10 to 25 per cent.

6 These appalling results are largely due to delayed diagnosis and improper mode of attack.

The latter should follow the principle of the two or more stage operation with provision for external colonic drainage either preliminary or at the time of resection always preliminary in the presence of serious obstruction or abscess formation.

8 The distal portion of the transverse colon the flexure and the entire descending colon must be resected in order to obtain the requisite conditions for secure anastomosis with ultimate patency of the colonic lumen.

9 Notwithstanding the meager success thus far obtained attention to the lessons learned from the successes and failures of those who have worked in

this field justifies the hope that this lesion may be as satisfactorily dealt with as cancer in other parts of the body  
G W HOCHREIN

**Swayne W C R et al Diverticula as a Causative Factor in Pelvic Inflammation in Women**  
*British Medical Journal* 1937 x v 91

Diverticula occur most frequently in the sigmoid descending colon and peritoneal covered portion of the rectum. These diverticula are actual hernia in the wall of the intestine at the points of attachment of the appendices epiploicae with protrusion of the mucous membrane. They commonly contain faecal concretions perforation is not an uncommon complication.

The author cites 2 personal cases in one of which perforation had taken place leading into the bladder.

Operation removes the ligature of the pedicle of the diverticulum and in agitation but nasum has as multiple diverticula usually first frequently imbedded in adhesions and the disease occurs chiefly in elderly females the operative risk is great. Medical treatment is of no avail. Diverticulitis should be considered as a possible factor in all pelvic inflammation of obscure origin.

L E R T I K

# LIVER PANCREAS AND SPLEEN

**Bodenstab W H The Diagnosis of Gall Bladder Disease**  
*Journal of the American Medical Association* 1937 x 59

Cancer of the gall bladder or ducts ruptured of the gall bladder empyema of the gall bladder suppurative cholangitis abscess of the liver hepatitis pancreatitis etc can be averted by an early diagnosis and operative treatment.

The diagnosis of gall bladder diseases is almost entirely with the anamnesis. Many cases of cholecystitis or cholelithiasis are mistaken for diseases of the stomach because of the reflex symptoms referable to the stomach but bearing no food relation.

In a series of 42 cases 31 had stones and 11 cholecystitis without stones. Tenderness the most constant symptom was present in over 85 per cent of the cases with stones and 93 per cent of the cases without stones. Vomiting occurred in 80 per cent of the cases of cholelithiasis and 45 per cent of the cases of cholecystitis without stones. Belching was present in 95 per cent of cases with stones and 70 per cent of cases without stones. Dyspnoea during the attack occurred in 70 per cent of the former group and in 39 per cent of the latter group. The sensation of impending death is a very frequent sign. Radiating pain occurred in 71 per cent of cases with stones and 39 per cent of cases without stones. Reflex symptoms of digestive disturbance were present in 29 per cent of the first group and 41 per cent of the second group characterized by no definite food relation. Twenty three per cent of the stone cases and 8 per cent of cases without stone gave a

history of jaundice. Many of the cases had bile in the urine the first twenty four hours after an attack.

In the series stones were found in the proportion of 1 male to 9 females while 31 males and 110 females had cholecystitis without stones. The gastric acidity varies from a hydrochloric deficiency to 100. Eighty eight per cent of the first group and 94 per cent of second group had attacks both day and night.

The five cardinal symptoms of cholelithiasis are radiating pain vomiting belching dyspnoea and postprandial distention.

The author's experience with the X-ray in diagnosis of gall stones has not been encouraging. In 90 per cent of cases of cholecystitis and cholelithiasis a correct diagnosis can be made from the history alone.  
V C HUNT

**Scalene A Anomalies of the Gall Bladder and Bile Passages with Report of a Double Gall Bladder and a Floating Gall Bladder**  
*Medical Journal* 1937 x 1

The author quotes several cases demonstrating each of the following anomalies having gathered his data from literature and from personal communications from a number of surgeons and hospital authorities. Double gall bladder bilobed gall bladder diverticulum of gall bladder relating to location of gall bladder intrahepatic floating gall bladder transposition of vesicles floating gall bladder also absent gall bladder and horseshoe stomach.

Although cases reported by the author of a double gall bladder and a floating gall bladder these came under the author's personal observation.

H H FREIL H

**Hendon G A Cholecystitis with and Without Gall Stones with a Classification of Symptoms**  
*South Medical Journal* 1937 x 73

The author's study is based upon 30 personal cases. Statistics present in 18 cases or 60 per cent. Nine cases regarded in some period in the history of the complaint and jaundice occurred in one case in which tones were found. Stones were found in 10 cases where suspected during operation of other condition.

Typical colic occurred in 15 of the cases or 50 per cent and also in 5 cases where no stones were found. One patient upon whom a secondary cholecystostomy had been performed returned in six months because of periodic colic attacks. Complete relief followed cholecystectomy although 60 stones removed at the first operation and none were found at the second.

Hendon relates symptoms and shows that derangement of the tone is the most constant occurring in more than 83 per cent of his cases. He believes that one in every ten persons who think they have stomach trouble actually have a gastric disturbance and that indigestion is a term used by the laity for expressing a variety of ailments.

ranging from pregnancy to locomotor ataxia. He also states that the stomach is the seat of primary pathological changes less frequently than any other organ within the abdominal cavity. The only lesions occurring in it with sufficient frequency to be of practical importance are ulcers and their sequelae and cancer.

In the 30 cases studied, typical colic ranks next to stomach derangement as a symptom, but its positive value is depreciated by the fact that there were 3 cases in which it existed and no stones were present and cases in which stones were present but unsuspected the abdomen having been opened for other conditions. Gall stone colic is often called acute indigestion by both patients and physicians. Seven illustrative cases of gall stones are reported.

D. N. EISENDRATH

Porter M. F. Cholecystectomy. *Ann. Surg.*  
Phila. 1917, lxxi, 31.

The result of study and experience in about 1000 cases of surgical diseases of the gall bladder and gall ducts have led to the following conclusions:

1. The gall bladder is an important organ but not vital.

Cholecystectomy increases bile pressure in ducts favoring danger from pancreatitis.

3. Symptoms of gall bladder disease are only partially caused by tissues of the gall bladder proper.

4. Recurrence of symptoms after cholecystectomy means overlooked stones, reformed stones, infection of the bile stream, or hypercholesteræmia.

The gall bladder should never be removed save when necessary for the cure of the disease for which operation is done. It is generally agreed that gall bladders of the following types should be removed: (1) hydrops with obliteration of cystic duct; (2) chronic empyema; (3) the cholesterol or strawberry gall bladder; (4) calcareous or fibrous degeneration; (5) carcinoma when limited to the gall bladder; (6) extensive laceration or perforation. Many would add gangrene, yet the mortality is higher after cholecystectomy in such cases than after cholecystotomy and drainage.

It is the author's experience that the actually infected gall bladder with oedematous walls is practically always permanently cured by cholecystotomy. Many patients operated upon twenty or more years ago are still living and well. The importance of bile flowing into the gall bladder at time of operation or shortly thereafter is generally underestimated. Buchanan states that of 21 cases cholecystomized only 85 per cent were not entirely cured when bile flowed freely into the gall bladder while 45 per cent were not entirely cured when it did not.

The return of symptoms after cholecystotomy does not mean that cholecystectomy should have been done. It appears illogical to remove a gall bladder in cases where the bile ducts are infected yet permissible when interstitial cholecystitis

exists. It seems warranted that it is neither necessary nor advisable to remove the gall bladder except when it is diseased or injured beyond the probability of restitution.

T. I. HAMMOND

Linder W. Diagnosis of Acute Pancreatitis with a Special Study of Thirty Three Cases. *J. Am. M. Ass.* 1917, lxxv, 718.

In presenting this report of 33 cases of acute pancreatitis gathered almost entirely in the short period of three and a half years, it is the author's desire to arouse an interest in this condition and to show that the possibility of acute pancreatitis in every acute case demanding abdominal surgery frequently helps toward a diagnosis. Errors of diagnosis of this condition are mainly those of omission.

In the first series of 16 consecutive cases operated upon before June 1915, there was a mortality of 62.5 per cent.

In the second series of 15 cases since June 1915, the diagnosis having been made in 13.3 per cent of the cases, there was a mortality of 13.6 per cent.

The mortality statistics show the importance of prompt diagnosis and timeliness of operative procedures. Operation is indicated in all cases unless shock is extreme and very rapid operation is of extreme importance. The condition of the patient will determine whether any gall bladder operation otherwise indicated should be done.

The pancreas may be exposed by any one of four routes: (1) through the gastrohepatic omentum which is preferable; (2) through the transverse mesocolon; (3) through the gastrocolic omentum; and (4) in the late stages through the lumbar region.

Operation consists of multiple punctures of the pancreas with blunt forceps and drainage of the gland with rubber tissue and gauze as if it were an acute phlegmon. The omentum is closed around the tube.

The postoperative course consists of a strict anti-diabetic diet and sodium bicarbonate to reduce the pancreatic secretion. The patient should be kept under supervision for several years owing to the possibility of recurrences of acute attacks and the development of cyst formations or chronic pancreatitis.

EDWARD L. CORNELL

Morton C. A. Acute Pancreatitis with Special Reference to Its Treatment and a Record of Three Cases Presenting Unusual Features. *Bristol M. Chir. J.* 1917, xxxv, 80.

The diagnosis of acute pancreatitis is rarely made before operation. Upon opening the abdomen areas of fat necrosis in the omentum direct the attention to the pancreas which is usually swollen and hæmorrhagic. Blood stained fluid is found in the lesser peritoneal sac. The disease may affect only a small portion of the pancreas. The vomiting in one of the author's cases was faecal though this is extremely rare. Temporary recovery may occur with later exacerbation of all symptoms terminating



fatally. In all 3 cases cited there was a history of recurrent attacks of acute pancreatitis in the upper abdomen simulating gall stones.

In acute pancreatitis drainage should be established for the evacuation of the lesser sac or into the retroperitoneal space around the pancreas. Suppuration of the pancreas is best drained from behind a formal drainage tube. The drain should be to the left of the spine between the tip of the left kidney and the pleural arch in order to avoid the last rib. Only the hinge tips should be used for fear of injury to the splenic vessels. The drain should not be removed easily. If possible both anterior and posterior drainage should be established. Stones in the common duct may cause pancreatitis but removal is rarely possible during the pancreatitis because of the dependent condition of the patient. I. R. T. KE

#### Shuman H M Splenectomy in Pernicious Anæmia C. I. J. S. J. M. D. 97 338

The author reports the case of a fifty-year-old male patient who had pernicious anemia to a point nearly fatal and a necropsy report which pathologically was as follows:

The patient was a man of fifty years of age who had lost twelve percent of his body weight, blood showed 7 percent hemoglobin, blood count gave 850,000 red blood cells and 5,400 white blood cells with first examination. Under diet and a general treatment he improved and died of heart failure. About five months later he was transfused from his son with hemoglobin and gained 2 percent and later reaching 40 percent. Three days after the first transfusion he died from a other cause. The following day the spleen removed was enlarged and there were no adhesions. Two months later the hemoglobin was 0 percent. Death occurred thirteen months after the splenectomy.

The history of the case is full. Brief abstracts from the pertinent notes of his treatment in similar cases are cited. E. C. K. F.

#### Hill R A Ca f A l l u c i J u n d i T e a t d b y Splenectomy B. I. M. J. 97 44

A stoker aged 32 contracted dysentery in Gallipoli in August 1913. He was affected with slight jaundice for some weeks during convalescence. A year later there was a sudden onset of pain in the right hypochondrium a temperature of 104 F and marked jaundice. The abdomen was tender but not rigid. The urine contained a small amount of bile pigment stools were normal. Two days later there was hæmaturia. Aay examination for calculi was negative.

Exploratory laparotomy was done on the fifth day the hæmaturia jaundice and fever persisting and a distinct tumour evident across the left hypochondrium. The gall bladder kidneys and gastro-intestinal tract appeared normal. The tumour proved to be the spleen which was enlarged. A slight jaundice

persisted but the patient's general condition improved following operation. On the eleventh day a fragility test showed partial hæmolysis with 0.5 percent saline and no hæmolysis with 0.7 percent concentration. The serum was bile stained. Blood count gave red cells 3,090,000 white cells 5,000 hæmoglobin 45 percent color index 75. Differentiated count gave polymorphous nucleated 38.4 percent small mononuclears 34.3 percent large mononuclears 6.0 percent basophiles 3 percent.

The three nucleated red some macrocytes and microcytes precocious and some polychromatic tinged. The Wassermann test was negative. There was no enteric agglutination and no malarial organisms in the urine or the stool.

No improvement followed a month's treatment with iron cod liver oil etc. Slight jaundice persisted. Splenectomy was done seven weeks after the onset the spleen weighed 22 ounces. Microscopic examination showed a general increase of fibrous tissue with atrophy of the malpighian corpuscles.

Clinical notes as to the progressive four months follow-up of the blood picture was normal except for an abnormal fragility of the red cells. The general health of the patient was good eleven months after operation with no return of jaundice. As there is a family history of jaundice the author considers this a case of acquired acholuric jaundice. C. A. H. D. BLOM

#### MISCELLANEOUS

##### Ebright G F Diffusible Dagnall of Abdominal Tuberculosis C. I. J. S. J. M. D. 97 300

Tuberculosis of the abdominal viscera is commonly associated with pulmonary tuberculosis but the primary infection is to be searched for in the lymphatic system especially the peribronchial and retroperitoneal glands. The type in which tubercle bacilli present itself depends upon the rapidity of the inflammation. Rapid processes being associated with a tendency to the formation of abscesses and slow processes with the formation of adhesions. A long process of ingrowth of the chicken and adhesion of the fluid is called off collections and abscesses. The tuberculous form gives rise to the tuberculous and hypoplastic growths in the wall of the intestine. In the usual case the acute and subacute forms are commonly absent but the chronic forms the emphysematous subacute forms.

There is nothing characteristic in the symptomatology of tuberculosis of the liver or gall bladder and diagnosis is practically never made except upon operation or postmortem. A helpful point in the diagnosis of tuberculous appendicitis and hypertrophic tuberculous changes in the ileum or cæum lies in the fact that tuberculosis of the ileum is always present. The local symptoms are no different from other forms of tumour or local gland inflammation.

Stiehl's sign is of importance in differentiating

hyperplastic tuberculum of the cæcum from cancer. In the presence of the tubercular condition the X ray shows that the bismuth mass goes more rapidly through the cæcum resulting in a picture which gives no bismuth shadow in the cæcum but only above and below it. If the question of diagnosis between hypertrophic tuberculum of the ileum and of the cæcum arises the cæcum empty of bismuth under the X ray test would seem to indicate involvement of the cæcum on the other hand if bismuth shows in the cæcum it would indicate lesion in the ileum. Sterlin's sign is absent in cancer of the cæcum. C. D. HALCII

Coffey R. C. Intra-abdominal and Intra-abdominal Pressure. *J. Im. M.* 155 1917 LXIX 683

The peripheral abdominal wall is a flexible structure composed chiefly of flexible and elastic muscle enclosed in a flexible but non-elastic aponeurosis. While the wall is flexible to a large degree it is collapsible only in its front portion. The collapsible portion or anterior abdominal wall contracts to the ordinary belief is but slightly elastic under an ordinary acute strain owing to the strong layers of aponeurosis surrounding the muscles. Except in chronic processes such as the development of a tumor by cellular increase, a cyst, ascites or pregnancy there is but little change in the capacity of the abdomen of an otherwise normal person. Extreme distention of the abdomen may noticeably enlarge the abdominal cavity by pushing up the diaphragm at the expense of chest capacity. By elevation of the ribs the girth of the upper portion of the abdomen may be increased but the lower or middle part of the abdomen will be correspondingly diminished. Elevation of the ribs plus extreme distention of the abdomen makes tense and collapsible part of the abdominal wall and increases the girth of the abdomen at all points but the only actual increase of abdominal capacity is made at the expense of chest capacity by elevation of the diaphragm. The abdominal cavity is air tight but is by no means a vacuum.

There is always a variable and indefinite amount of pressure in the peritoneal cavity known as intra-abdominal pressure. This pressure may be greater but is usually less than the atmospheric pressure.

The degree of intra-abdominal pressure depends on the variable contents of the abdominal cavity. The variable contents are (a) extraperitoneal and mesenteric fat (b) the visceral contents. The visceral contents are liquids and gases which may be intermittently expelled at any time thus acting as an immediate safety valve for the establishment of an equilibrium and a normal intra-abdominal pressure. The extra-peritoneal and mesenteric fat is included within the inelastic abdominal wall and lessens the abdominal cavity in exact proportion to the amount of fat thus included.

The law of osmosis by which fluids of different densities pass through an animal membrane and establish an equilibrium has its counterpart in the relation of intra-abdominal and intra-visceral pressure.

The author demonstrates by diagrams and X ray pictures his results in applying the principles of intra-abdominal and intra-visceral pressure. In some cases of ptosis he has placed the patients on forced feedings thus increasing the intra-abdominal fat with good results. The implanting of ureters, gall ducts and the correction of incompetent ileocecal valves by his method of operating has yielded normally functioning valves.

EDWARD L. CORNELL

Roberts C. W. Subparietal Injuries of the Intestines and Kidney Report of a Case. *J. Med.* 155 *GA.* 917 1917 81

Roberts makes the following summary.

When a patient has sustained an abdominal injury manifesting the usual symptoms of shock, nausea, vomiting and rigidity of the abdominal wall a diagnosis can safely be made of injury to the intra-abdominal contents which requires immediate attention. A gradually increasing resistant swelling over the kidney region requires undelayed surgical intervention. Operation upon injured viscera shall be performed within the first twelve hours after injury. The author strongly condemns watchful waiting and believes that the surgeon can discriminate between mild cases which need no surgical interference and those that manifest injury to the deep seated organs.

M. A. BERNSTEIN

## SURGERY OF THE EXTREMITIES

### DISEASES OF THE BONES JOINTS MUSCLES TENDONS CONDITIONS COMMONLY FOUND IN THE EXTREMITIES

Blanchard W. Treated and Untreated Osteochondritis Juvenilus of the Hip. *J. Im. M.* 155 1917 LXIX 1060

The author reports several cases and shows roentgenograms in support of his theory that Perthes disease is a unilateral trophic disturbance due probably to an impairment of circulation from the

median pelvic line to the foot. Diffuse atrophy of the bone not only of the head and shaft of the femur but also of the corresponding side of the pelvis was present in several cases. Since the disease has been differentiated from tuberculo and shown to be comparatively mild there has been a tendency to neglect treatment with the result that after one or two years movements are limited especially abduction the femoral head is almost destroyed and the neck distorted.

The course of the disease is about one year and during this time the hip should have the same mechanical and general treatment as that given to tubercular hips otherwise the friction and concussion of weight bearing will cause erosion of the head and osseous. After the first year the head of the femur usually begins to harden again and to resume its normal rounded form and if the disease has had adequate mechanical treatment from the beginning there is more nearly perfect regeneration and no loss in length of the leg. W. A. CLAAR

# Thorning W. B. The Diagnosis of Acute Osteomyelitis. *Atlas J. R. Med. 9719*

Thorning cites the following case as more or less typical of an acute osteomyelitis in which the diagnosis is not made as early as it should be. A five-year-old child had acute tonsillitis three weeks before and had apparently recovered completely. A week before the author saw her she fell out of a porch swing spraining her ankle. The injury seemed trivial as she resumed play shortly afterward. That night she awoke from sleep with severe pain in the ankle. No treatment was applied. In the morning there was fever, the ankle swollen and the pain more intense. A physician diagnosed the condition as a sprained ankle and advised hot applications. Thirty-two hours after the injury the rectal temperature was 103.5, pulse 130, the patient delirious and apparently suffering great pain. The lower third of the leg was greatly swollen and reddened. A diagnosis of acute rheumatism was made and salicylates were administered. On the third day the pain and temperature had subsided somewhat. On the fourth day although more comfortable the patient complained of severe pain just above the internal malleolus. This area was fluctuating and on incising same a large amount of pus was discharged. Two days later the X-ray showed the presence of almost the entire shaft of the tibia.

Acute osteomyelitis is very frequently diagnosed as acute rheumatism; the latter diagnosis should be reserved for those cases where there is multiple arthritis, fever, sweats, and a tendency to endocarditis, etc. The white blood count in osteomyelitis is between 25,000 and 40,000 in hematism it is rarely so high. In osteomyelitis the leukocytes are either above or below the joint, whereas in hematism the joint itself is affected. The pain in osteomyelitis is abrupt and very severe; in hematism the onset of the pain is gradual and usually less severe. The capsule of a rheumatic joint on palpation is tense and very often fluctuating, and the point of greatest tenderness is directly over the joint line. In osteomyelitis the pain is not directly over a joint but to the side of it.

The pus of an osteomyelitis may perforate into a joint and produce a septic arthritis, but this never occurs on the first or second or third day. Manipulation of a rheumatic joint greatly increases the pain

and immobilization usually gives relief. With osteomyelitis movement or immobilization makes no material difference. In differentiating from a Neisserian infection of the joint the previous history is of great value.

As to the etiology the author believes that osteomyelitis is always an infection, the most commonly found organism being the staphylococcus pyogenes aureus. Mixed infections are quite common. If the theory is accepted that osteomyelitis is always hematogenous a primary focus must be sought somewhere else in the body. Most cases give a previous history of tonsillitis, influenza, ingrowing toe nail, etc. The treatment consists of immediate incision through the periosteum. The bone is then drilled through the cortex down to the marrow cavity and free drainage instituted. J. J. KLEIN, ER.

# Kreuscher P. H. Semilunar Cartilage Fracture Dislocation and Fracture of the Scapula. *Cl. Surg. 87*

The author discusses the treatment of fracture dislocation and fragmentation of the internal semilunar cartilage. He states that one of the most frequent lesions is about the knee joint which may not be recognized when the patient is first examined. It is semilunar cartilage disease. There may be present a simple dislocation of part or all of the cartilage or there may be fracture dislocation or fragmentation.

Etiologically several types are recognized: (1) fracture or dislocation due to direct external trauma; (2) impaction or fragmentation of the cartilage due to internal trauma; (3) very quick twisting or flexion of the knee joint under weight; (4) loosening and fraying of the artilage due to chronic synovitis or osteoarthritis.

Kreuscher quotes various authors who give the relative proportion of injuries to internal and external cartilages as follows: Morrison, 50% internal to 50% external; W. L. 81% internal to 19% external; Marten, 92% internal to 8% external.

When a patient presents himself giving a history of an internal trauma or a twisting of the knee joint, his history is followed by considerable pain and swelling. At once think of a cartilage injury. If no doubt on the patient's history of locking of the knee joint and the typical acute pain accompanying it followed by the disappearance of the condition after manipulation, or if the patient is quite possible that there is a case of fragmented or loosened cartilage. When the locking recurs repeatedly or when the whole body can be felt under the skin internally to the joint which is not freely movable, then diagnosis of internal semilunar cartilage injury is established.

The treatment is surgical and should be carried out as early as possible. The author holds with Murphy that the best time for operation is from seven to ten days after the original dislocation or repeated attack of the same trouble.

The operative technique is as follows

The patient is placed upon the operating table flat on his back with his knees flexed over the end of the table and the head and body lowered essentially a Trendelenburg position. The knees are flexed at right angles to the thighs as this gives the very best possible position for opening the knee joint at the semilunar cartilage location. An incision about  $1\frac{1}{2}$  inches long is made parallel to and either internal or external to the ligamentum patellæ as the case may be. After the incision has been extended downward to the upper end of the tibia it is curved outward and almost parallel with the articulating surface of the tibia for a distance of about  $1\frac{1}{2}$  inches. This gives almost a right angled incision and after cutting through the skin and fatty tissue exposes the true capsule of the joint. A fresh scalpel is used in making the incision through the capsule about on the same lines as the skin incision. This brings one down to the synovial capsule which is opened with great care and for the first time the joint cavity is opened. Before beginning the operation it is necessary that a very firm tourniquet in the form of a large rubber tube or an oversized band such as is used on the blood pressure apparatus be applied high upon the thigh. This prevents all bleeding from the skin and subcutaneous tissue so that the field is practically bloodless and it rarely becomes necessary to introduce a sponge into the wound or into the joint. When the synovial capsule is opened the joint fluid often escapes very freely if the injury has been a recent one. If it is clear synovial fluid the loose or fragmented cartilage may be clearly seen in the field and grasped with a forceps and drawn outward. In the ordinary case a curved scissors frees that portion of the semilunar cartilage which still remains attached with very little difficulty. If any difficulty is encountered at all an adduction of the leg on the thigh in the case of an internal semilunar cartilage operation gives one free access to the posterior portion of the semilunar cartilage attachment. Great care is exercised not to injure the surface of the joint in any way. After the cartilage is removed the edges of the synovial membrane are approximated and sutured with fine catgut. The capsule is closed with catgut and the skin sutured with horsehair and the operation is completed.

After treatment consists in placing the leg in a straight wire cage and applying a Buck's extension with a weight of from 12 to 15 pounds so as to keep the joint surfaces separated during the process of repair. After twelve to fifteen days active motion is permitted and at the end of three or three and one half weeks the patient is able to be about on crutches.

The operation for the removal of the semilunar cartilage in uncomplicated cases is very successful. The absence of the cartilage in the knee joint does not interfere with the function of the joint.

PHILIP LEWIN

## Buchholz C H The Stiff and Lame Shoulder

*J Am M Ass* 1917 lxx 968

The complicated structure of the shoulder joint explains the great variety of affections which give rise to lameness. The author describes several of these and briefly outlines his methods of treatment.

Subacromial bursitis if acute requires rest with the arm supported in abduction. Hot bakings and massage are useful after the acute symptoms have subsided. If the condition has become chronic and adhesions are present forcible manipulation under anæsthetic or even opening of the bursa may be necessary but as a rule careful exercise will give relief. The muscular retraction usually of the inward rotator muscles which follows trauma is best treated by frequent and gentle stretching manipulations rather than attempted mobilization by quick stretching. Infectious arthritis is treated in a manner similar to that for the acute condition described after eliminating the etiological factors. In cases of disability due to hypertrophic osteo arthritis very conservative methods should be followed and all irritative measures avoided. Baking for short periods and light massage with gentle resistive movements is the author's plan of treatment. Rupture of the supraspinatus tendon is an infrequent trauma. Three such cases which required suture of the lacerated tendon are reported. Non adherent subacromial bursitis is mentioned as a distinct group but there is some doubt about the existence of such a chronic condition without adhesions.

The conservative treatment as employed by the author consists in baking for fifteen minutes gentle massage of shoulder and upper arm muscles followed by light passive exercises chiefly of rotation with the patient lying on his back the operator moving the arm with one hand and directing the movements with the other hand upon the acromion and humeral tuberosity. Abduction and combined movements are gradually introduced and the range of movements amplified.

W A CLARK

## Petrilli G L Gunshot Wounds of the Knee

(Contributo clinico sulle ferite di guerra del ginocchio) *Polietin* Roma 1917 xxi se chir 401

In the author's experience wounds of the knee formed about 2.88 per cent of the total number of wounded. About 52.40 per cent of the knee wounds were penetrative knee joint injuries and 47.6 per cent non penetrating. Altogether 126 knee wounds were treated in about one year. Of these 6 progressed aseptically. Of 16 cases resulting in death 8 had multiple lesions cranial thoracic etc.

The fundamentals of the treatment adopted were (1) asepsis and immobilization in wounds that were apparently not infected or only very slightly infected (2) immediate operation of septic wounds (3) in cases of arthritis with unimportant osseous lesions if the patient was in good condition toilet of the area with lateral arthrotomy closure of the

synovial interrupted irrigation and bolition of transarticular drainage (4) a severe infected osseous lesions wide opening up of the tract and section of the lateral ligaments and according to the case simple immobilization in flexion leaving the joint largely exposed or resections more or less extensive of the articular head W A BREX AN

## FRACTURES AND DISLOCATIONS

Page C M and LeMeu A B Enly T eat  
ment of Gunshot Fractures of the Tibial Bone  
J S g 9 66

The authors state that open a to surgical treatment of compound fracture is by no means unanimous. The question arises whether better results can be obtained from extension or by treatment with the double inclined plane. The Thomas knee splint or the fixation modifications are the best arrangement available. The conclusions are based upon observation of 18 cases not including gross injuries to the knee or hip joint. Of 15 cases observed over an average period of 4 days ten were not infected and 7 were ultimately healed. There were few amputations and ten deaths.

Satisfactory drainage should be permanently established as soon as possible after the injury. All loose fragments of bone should be removed and the lacerations debrided. Afterward dry sterilized gauze may be employed in preference to tubed drainage but in some cases both are necessary.

Further immobilization may be necessary in case of peeling cellulitis or when infection by the bacterial aerogenes capsulatus occurs. The average period of nursing with immobilization by splints is indicated (1) the period of early infection (2) the period of acute infection (3) the period of healing.

The Thomas knee splint is preferable in fractures of the lower two thirds and the Hodge's splint in the upper third of the femur. Proper action of the Thomas splint depends upon the cleavage of the ring the average cleavage should be an internal circumference of 24 inches. This splint may be used in its original form or may be modified to give the double inclined plane position. The modifications possess no advantage over the original pattern. For both varieties Buck's extension is commonly used however extension can be made by transfexion pins through the lower end of the bone in those cases where full control of the lower fragment of the femur is required. Ankle extension attachment of mold of plaster of Paris or of leather have not proved satisfactory.

During the after treatment the splint should be suspended from a beam thus allowing more freedom to the patient and facilitate nursing and dressing. Pressure sores and foot drop should not occur if the patient is properly cared for.

In clean cases the fractured bones are brought into their proper position during the first week of treatment in severely infected cases it is sufficient

to let the limb rest comfortably without making a forcible effort during the first two weeks to pull it out to full length. In 51 cases of fracture of the lower third of the femur the union of the lower fragment as observed in 47. If manipulation is necessary to reduce the deformity antitetanic serum is given two days before such a procedure is attempted. The great sciatic nerve was injured in 6 cases the external popliteal in 4 cases and the anterior tibial in one case secondary paralysis of the distal popliteal occurred in 7 cases. Injuries to large arteries were found in but 3 cases of the series.

The authors report thirty cases of persistent high temperature due to bone infection. Five cases developed tetanus.

In some cases it is possible for the patient to be up and about in the form of ambulatory apparatus while immobilized the fragments.

P H K UCHER

Thomas H B Fracture Recount in Treatment and  
Incidence of Congenital Dislocation of the  
Hip J I W J 9 7 8

The author's attention to the necessity of early diagnosis of the congenital dislocation of the femoral head and the establishment of a method of treatment in the pediatric cases should be held in mind for the treatment. He believes that all children with a hip dislocation should be examined prenatally through the hip.

Orthopedic treatment is followed as follows (1) manual manipulation (2) manual manipulation (3) manipulation. The author believes manual manipulation is preferable and advises open operation only in a limited number of cases.

H W M ING

## SURGERY OF THE BONES JOINTS ETC

M K N N H S Surgery of Bones and Joints with  
Epiphyseal Reference to the Open Operative  
Treatment of Fractures and a Method of  
Arthroplasty in Ankylosis of the Elbow  
Joint J I W J 9 1 89

The author refers to the fact that most organs are equipped with special culture media for their growth and also that there are certain points of election in which these organs choose for localization. The synovial structure of the joint very frequently in osteomyelitis and often to such an extent that an ankylosis is the result. In certain types of joint infection especially tuberculous ankylosis may be done early before contraction occurs.

Special stress is laid on careful interpretation of the history and the author calls attention to the paragraphs on tuberculation and diagnosis in a paper by Kreishe in which a careful study was made of 1000 cases of arthritis. The open and

closed methods for the treatment of fractures are considered. Careful asepsis and sterilization of instruments and sponges is advised. A very successful operation for ankylosis of the elbow performed after the plan of Murphy is described.

A transplantation of bone by the autogenous graft is highly recommended in ununited fractures especially to fill up certain bone defects caused by disease or a congenital absence of bone.

P H KREUSCHER

**Salinari S** The Study and Treatment of Gunshot Wounds of the Limbs (Contributo allo studio ed alla cura delle ferite d'arma da fuoco degli arti) *Riforma* 1917 LVIII 654

The author's report is based on 15 000 wounded soldiers observed in the Italian army of which 10 950 or 73 per cent were limb injuries. Of the latter 5 130 or 34 per cent were of the upper extremities and 5 820 or 38 per cent were of the lower extremities.

About 6 per cent of the total number involved the soft parts only. 1 per cent were skeletal injuries and 4 per cent were articular. 11 per cent involved the blood vessels and 3 per cent the nerves. 33.7 per cent were rifle wounds, 5.6 per cent were large projectile wounds. Statistics as regards the region of the upper or lower limb in which the lesion occurred are also given.

The author discusses the various methods of treatment in vogue. He draws attention to the desirability of treating limb wounds throughout their course in the same hospital service under the survey of the same staff. Such hospitals should be completely equipped both for sanguinary and bloodless methods the latter being especially important in the after care of fractured limbs to avoid the complications and malfunctioning of limbs which are only too commonly observed through the lack of efficient treatment. He deplores the fact that after two years of war the therapeutic aids at the disposal of surgeons for the correction of deformities and anatomical defects are absolutely insufficient in Italy and that the maimed are sent from hospital to hospital until finally they are left to their own devices. There is a vital necessity for special hospitals for the complementary treatment of limb injuries.

W A BRENNAN

**Ryerson E W** Interesting Cases of Bone Surgery *Int J Surg* 1917 XXX 285

In discussing an ununited fracture of the neck of the femur in a woman of 40 the author states that in many cases the abduction treatment i.e. lateral traction is the proper procedure.

The abduction of fractures putting them up in the abducted position after they have been pulled down is the usual procedure although it has its drawbacks and for such cases as cannot be treated in either of these two ways or have not improved after such treatment unquestionably the best method

is the bone peg as described by Albee. There is no doubt that this bone peg should be autogenous especially in older people.

The author has used wire nails in some old cases with success. Nail cases in the aged however will not do so well and very few of the old ununited cases can be treated by nails the autogenous bone peg should then be used.

Recently the use of boiled beef bone for pegs for screws and for nails has aroused interest and later work may conclusively demonstrate its value. Gallie of Toronto has performed the Albee spine operation in a number of experimental cases employing boiled beef grafts instead of the tibia.

Joyson emphasizes the point that the graft should not be placed in the greater trochanter but below it so as to slant upward. PHILIP LEWIN

**Federici N** Right Gonarthrotomy for Purulent Fibrinous Synovitis in a Woman 72 Years of Age. Recovery (Gonartrotomia d'stra in vecchietta di 72 anni per sinovite fibrino-purulenta guarigione) *Gazzetta Osp. Milano* 1917 LVIII 571

A woman of 72 had for four months suffered from severe inflammation with slow synovial involvement in the right knee. There was but little exudate and the synovitis was evidently deep seated with involvement of the periparticular structures.

The author made a total cuneiform resection of the knee. Intervention was limited to the synovial emptying purulent fluid from all infrapatellarities and making a careful toilet of the wound. The patient made an uneventful recovery in spite of her advanced years. The Textor technique was followed in the gonarthrotomy. W A BRENNAN

**Cotton F J** Some Further Data on Artificial Impaction of the Hip *Ann Surg Phila* 1917 LXVI 380

Cotton believes that probably one half of all cases of fracture of the hip treated at the large general hospitals show good functional results whether the type of fracture is extra or intra capsular. As to the extra capsular type non union is a negligible factor the question is only that of fixation so as to insure reasonably accurate reposition of the fragments and the avoidance of adduction contracture which is important not only in the treatment of hip fracture but in all lesions of the hip joint. Adduction contracture is probably the chief factor in the disability of most hip fractures.

Cotton has used the following methods (1) the method of Phillips Maxwell and Ruth which consists of traction in abduction combined with lateral traction (2) Whitman's method fixation in abduction after manipulation (3) Moore's method of abduction in flexion in the so called frog spica.

One case treated by the first method was very satisfactory. The second and third methods were

used repeatedly Whitman's method has given poor reduction with overlapping of the fragments in two cases in the other cases results were good

Moore's method has the advantage that these patients may sit up immediately. It has the disadvantage of involving flexion of the knee a considerable source of trouble later in lying the knees following use of the spica. All these cases eventually do well.

For extra capsular fractures the treatment should be abduction in flexion. The method requires an efficiency in after care which is not always secured in a busy general hospital. Regarding the treatment of the intra capsular type of fracture there are two essentials the prevention of adductor spasm and the minimizing of eversion. This does not necessarily mean the breaking up of the impaction by a forcible correction but may be carried out by gradual correction to the best position obtainable through the use of sand bags without disturbing the impaction. There is always marked absorption of the femoral neck in varying degree. This does not occur in extracapsular fractures. Absorption is very rapid. In every case of intra capsular fracture whether impacted or not careful X rays at intervals show an absorption with porosity of the bone and there is also shortening of the neck and often a bending of the neck into convexity. If the bone forming power is poor and the softened bone fails to hold the impaction it simply falls apart. Many cases of impacted fracture have been found loosened because of non union a year later. Most of these cases were sent out on crutches after four weeks although Cotton reports two cases where there was no union in spite of careful treatment.

Cotton allows weight to be borne after two months in the extra capsular type of fracture. The intra capsular fractures retained in plaster for three months no weight borne for four months and full weight after six months. Even then he anticipates some failures. The production of articular impaction concerns itself with the intra capsular or sub capital fracture the fracture of the neck proper in which there is no impaction present or in which the deformity especially the eversion is extreme. The operation results in good apposition and the position is often perfect. The produced impaction gives the patient a more fortunate form of hip fracture. These cases are treated exactly the same as accidental impacted fractures with no better prognosis except the position is better and impaction more firm. Cotton reports some cases and states that from the results obtained much is still to be desired. He emphasizes the possibility that a firm impaction may break up spontaneously several months afterward due to the absorption of bone.

J J KURLANDER

Serafini G Transplants of Strips of Striated Muscle (Stapant di mbi diti utom colar tatio) *pe m tal* *Fr* *e* *19* *7* *1* *3*

The author reviews the findings of previous investigators on muscle transplantations down to Lever in

1914 who reported that free muscle transplants degenerated rapidly and were converted into cicatricial tissue. The author has made experiments on dogs guinea pigs and rabbits. Five experiments with pedunculated strips leads him to think that plastics with total or partial pedunculated strips ought not be employed except when they are autonomous as regards vascularization and innervation. In experiments with free muscle strips whether or not fixed by sutures he found degeneration on necrosis of the muscle substance and a progressive substitution of the transplant by connective tissue.

From other experiments made it seems clearly demonstrated that only those muscle transplants endowed with their own nerves and vessels are positive. Of all techniques tried by the author this method alone gave a favorable result.

In practice the author is of the opinion that free muscle transplants ought not be used but rather fascia lata which is easily sutured is resistant and has great vitality. But partial or total pedunculated strips autonomous as regards vascularization and innervation can logically be utilized even from the functional viewpoint.

W A BRENNAN

Chaput H High Amputation of the Shoulder (L'amp. t. t. n. h. t. s. d. l'ép. l. amp. t. t. n. s. s. r. m. l. t. m. l. t. n. t. c. d. n.)  
B l l t m e m S d c h d P 917 177

In the case of a soldier who received a gunshot injury of the upper humeral extremity and the external part of the clavicle Chaput performed a subacromial amputation in order to avoid an interscapulothoracic disarticulation. Clinically there is no need to operate on the two disarticulations with flap or racket and terecapulothoracic resection. Chaput considers it inadvisable to make interscapulothoracic amputation when the result is not enough tissue for a good disarticulation of the shoulder as in the case reported. It is preferable to make a high shoulder amputation. Three different methods can be employed: (1) subacromial (2) intracromial or (3) intracoracoid amputation.

In the subacromial amputation Chaput resects the soft parts completely below the acromion and in the thoracohumeral angle. In the intracromial the section is in the thickness of the coracion and the clavicle with circular incision of the soft parts. In the intracoracoid amputation the scapula immediately is sectioned distal to the coracoid and glenoid. The soft parts are incised either circularly through the great pectoral muscle or by shaping a flap in the form of an epaulette if the teguments are in good condition. The case operated upon by Chaput gave excellent results.

W A BRENNAN

Thompson J E Anatomical Routes for Operations on the Long Bones of the Upper Extremity *Te s St J M d* *9* *7* *70*

It is quite essential in the performance of surgical operations that the operator have first sound

anatomical knowledge second equally sound knowledge of surgical pathology third technical skill and fourth well balanced judgment

In the exposure of long bones it is necessary to have a mental vision of certain fixed anatomical structures. One must bear in mind the position of the axillary radial median and ulnar nerves and also the lines of the great vessels. Muscles must not be unnecessarily mangled. A deep wound should be avoided where a shallow one will suffice. Sensory as well as motor nerves should be preserved. In the exposure of the lower third of the shaft of the radius the common extensor tendons the extensor carpi radialis brevis and the extensor brevis pollicis should be born in mind.

In an exposure of the lateral aspect an incision along the posterior border of the brachioradialis can well be used. The middle and upper thirds of the radius can be exposed by keeping in mind the situation of the supinator brevis. When operating upon the ulna near the elbow it is often necessary to dissect the ulnar nerve out of its sheath.

In the exposure of the humerus the insertion of the deltoid forms one of the important landmarks. In the middle third of the shaft the musculospiral nerve must be divided. An incision along the anterior margin of the deltoid gives the best exposure of the upper articulating end of the humerus.

P H KREUSCHER

### ORTHOPEDICS IN GENERAL

Zadek I and Barnett E L. The Importance of the Ligaments of the Ankle in Correction of Congenital Clubfoot. *J Am M Ass* 1917 LXIX 957

In order to free the posterior end of the os calcis so that complete correction of equinus can be obtained the authors cut the posterior ligaments of the ankle joint with a tenotomy knife inserted in front of the Achilles tendon vessels and nerves and directed forward. The foot is then pushed up in dorsal flexion and instead of the rounded sole with bending at the mediatarsal joint which occurs in most cases where tenotomy of the Achilles is done the foot comes up in complete dorsal flexion all in one plane. This precludes the possibility of the relaxed club foot which is the result of mere bending at the middle instead of complete correction of equinus.

W A CLARK

Lewin P. Congenital Absence or Defects of Bones of the Extremities. *Am J Roentgenol* 1917 IV 431

The author deals with the nomenclature prevailing etiological theories and treatment of congenital anomalies of the bones of the extremities. He submits an exhaustive bibliography and a detailed description with radiographs of fourteen cases.

Lewin believes that no one theory explains all the conditions found. The amputation theory the ray theory heredity each seems to account

for some cases. The condition does not alter the prognosis as to life but the development of missing bones probably never occurs. The possibilities as to correction of deformities are generally favorable. After the part has been retained in position until the child is old enough for operation permanent results can be obtained by transplantation of tendons and bones.

I B COFIELD

Hibbs R A. Treatment of Deformities of the Spine Caused by Poliomyelitis. A Report of Eight Cases in Which Fusion Operations Were Performed. *J Am M Ass* 1917 LXIX 787

Plaster jackets and braces only retard the development of deformity. No case is operated upon until long after the acute attack has subsided and obviously no case is operated upon if there is any prospect of recovery of the affected muscles. The technique of operation is identical with the fusion operation performed on patients with Pott's disease. Hibbs' technique is as follows:

An incision is made directly over the tips of the spinous processes down to the bone. The periosteum over each tip and ligament between is then split and the periosteum elevated from each tip and separated from each vertebra until each spinous process and lamina is completely bare to the base of the transverse process. The periosteum is more adherent in adults. The lateral articulations which lie at the base of the transverse process are then curetted. A small piece of bone is elevated from the lamina and turned down its free end resting on the one just below it. The spinous processes are next partially divided and broken down so that the tip of one comes in contact with the base next below it. The periosteum and ligament are then brought together and fastened with interrupted sutures of ten day chromic catgut. The skin is also closed with the chromic gut.

Dressings and a brace or jacket are then applied. The patient is kept in bed for eight weeks and wears the brace for one year. Curetting the lateral articulation insures a fusion here. Turning down a piece of bone from the lamina prevents any tissue from falling between the laminae and insures their fusion. Hibbs prefers a steel brace which has been fitted a week before the operation. In six cases there was conspicuous deformity and in three such weakness that the patients could not even sit up unaided. All now have much better posture much more stability and protection from a progressive increase of deformity they probably have been saved from the necessity of wearing a brace or jacket indefinitely. There is no disadvantage in fusing low down and possibly in some instances a longer fusion is better.

J J KURLANDER

Ebright E D. Orthopedic Treatment of Acute and Convalescent Poliomyelitis. *J Am M Ass* 1917 LXIX 694

Operations designed to correct deformity are not sufficient. Deformities must be prevented and



more important than this permanent paralysis must be prevented. The division of the disease into the acute, convalescent and chronic stages is not sufficiently accurate and does not correctly correspond with the pathology or the clinical course.

Absolute rest is essentially the treatment of the acute stage. Complete immobilization of the entire body by the use of a plaster bed gives very favorable results. Of the most important muscles the deltoids show the most marked improvement and the quadriceps the least improvement. All the muscles of the shoulder recover about the same degree as the deltoid except that the external rotators supraspinatus infraspinatus and teres minor appear slower to recover. Of 46 paralyzed shoulders all but 2 show a marked improvement and Ebricht believes that eventually these will be useful joints. Ebricht summarizes treatment as follows: Absolute motor cell rest in the acute stage. In the subacute stage rest and support of the paralyzed muscles.

The author notes that

1. The most frequent regions of paralysis in order named are anterior foot muscles quadriceps glutei hamstrings deltoids hip flexor internal rotators of the thigh and external rotator of the shoulder.

Treatment of spastic cases is very unsatisfactory

3. A stretched muscle will not regain its tone. This is the basis of all treatment and every weakened muscle should be treated with this in mind. The results in the treatment of deltoids were obtained by keeping the muscle relaxed by the use of a brace which elevates abducts and externally.

rotates the arm Whether the elbow is flexed or  
extended depend upon the condition of the biceps  
or triceps

4 Many cases have been proved to be cases of muscle fatigue not true paralysis. Overcorrection in plaster for several weeks gives very good results particularly in dealing with the leg muscles.

5 Many spines are injured because children are allowed to walk too early. Braces should not be used until they can be used without injury to other weakened muscles.

6 The treatment can be carried out more successfully in the hospital than in the home because of the constant supervision.

Electricity has no place in the treatment of this disease.

8 M s le tra n n and re education s very valuable in the con alescent and chronic stages but is contra indicated in the acute and sub acute stages where its use may do much harm by stimulating the d sea ed motor cells that requ re absolute rest

q Out of 1 cases 86 showed a very weakened condition of the spinal muscle and 42 presented a decided curve. The author believes that poliomyelitis is the cause of most cases of scoliosis. He doubts whether faulty posture alone causes scoliosis with the exception of those cases caused by rickets, emphysema, asymmetry, etc.

All treatment of weakened or paralyzed muscles should be based on the fact that a stretched muscle will not regain its tone and all stiffened muscles should be held in a position of constant elongation.

J I KURLAND R

## SURGERY OF THE SPINAL COLUMN AND CORD

Blair R B A Note on Cervical Laminae  
La c t L nd 917 20

The number of cases of gunshot and shell wounds involving the spine which are operated on at the clearing station is small. Many are hopeless, however, there are cases in which operation should be considered. The deciding factors may be incomplete paralysis, accessibility of the missile and pain due to pressure on nerve roots. Any one of which or a combination of all three should encourage all doubt from the surgeon's mind as to operation.

If there is pressure on the cord by bony fragments or missiles the sooner that pressure is removed the more hopeful is the outlook. Should a missile be lodged delay may invite the advent of sepsis.

Before considering operation an X ray examination is advisable

Retention of urine necessitates catheterization every six hours or suprapubic cystotomy, usually the latter seems wise. Thompson Walker advises such a procedure as early as possible. V. C. Hunt

Guill in G and B rre I A G nshot Injurie of  
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During the French offensive at the Somme from July to December 1916 the authors observed 225 cases of true or supposed spinal cord injuries and traumatic paraplegia in the service. Of these 138 cases died in the hospital and 87 have been v. cuat d. In a previous report the authors stated that cord injuries are most frequently due to fragments of shell. 123 of these cases we e due to this cause 51 we e bullet injuries 23 shrapnel and 8 miscellaneous. The dorsal region most frequently injured. In the 138 fatal cases were cervical 43 were superior or dorsal 51 inferior or dorsal and 3 were lumbosacral.

At autopsy in 24 cases the lesions found were haematomyelitic with acute necrosis of the cord without any existing opening of the dura mater. *It must not be assumed that there is total or partial*

section of the cord in cases of traumatic paraplegia. There are cases where the projectile, whether or not it fractures a vertebra, passes at some distance from the cord without injuring the dura in any way but nevertheless indirectly causes intramedullary lesions with hematomyelia or necrosis which give rise to a clinical paraplegia syndrome.

In only 15 autopsies did the author find complete anatomic section of the cord. This condition can only be verified at autopsy because during an operation it is almost impossible to affirm that a cord is completely sectioned.

Among 87 cases which recovered and returned to base hospitals were 35 cruda equina lesions.

Among the dorsal and lumbar medullary lesions there were 9 cases which showed a Brown Sequard syndrome. All survived and were evacuated. Cauda equina lesions were relatively numerous and showed a tendency to progressive improvement.

W. A. BRENNAN

**Roberts C. W. Gunshot Injuries of the Spinal Cord with Report of Two Cases.** *South M. J.* 1917 7: 734.

In civil practice injuries of the spinal cord produced by gunshot wounds are frequently seen and

the symptoms which follow furnish the key to treatment. Some surgeons advise and practice exposure of the cord over the seat of injury in all cases holding that the real extent of injury to the cord can only be determined by exploration and that no harm is done by this procedure. A more conservative view favors waiting in such cases to determine whether or not the cord is completely divided. Regeneration of nerve tissue in the cord after complete division is a mooted question. The present teaching and accepted practice favors operative procedure in all cases where clinical signs or the X-ray give evidences of pressure on the cord. In gunshot injuries fragments of vertebrae are frequently driven against or into the cord and in many cases the bullet itself is buried within the cord substance. When there is sudden and complete paralysis of motor and sensory nerves below the segment of cord involved in the injury the author advocates the expectant plan of treatment but if gradual paralysis follows the injury or if paralysis is confined to nerves of motion operative delay is disastrous in most cases. He gives reports of two cases, one in each class to prove the correctness of the procedure as he has outlined it.

D. N. EISENDRATH

## SURGERY OF THE NERVOUS SYSTEM

**Sommerfelt L. Metastatic Spinal Ganglion Sarcoma with Induced Ascending Paralysis.** (Sarcoma utgaende fra spinalganlion med infiltration i rygmarven og hjernens tynde hinde under blødt av en opad stigende lammelse.) *Norsk M. f. Lægevidensk.* Kristiana 1917 1: 100 of 8.

The case of spinal ganglion sarcoma with induced ascending paralysis which is reported by Sommerfelt is unique in literature according to his research. It occurred in a man of 8 years and the symptoms were those of paralysis. Death resulted and autopsy disclosed a sarcoma lying entirely outside of the spinal canal and situated about the twenty-fourth left spinal ganglion. The sarcoma had a fibrous capsule and was connected with nerve roots.

W. A. BRENNAN

**Blanc. Nerve Anastomosis in Paralytic Deformities.** (Las anastomosis nerviosas en las deformidades paralyticas.) *Siglo med.* Madrid 1917 LXIV 661.

Blanc reports a clinical experience in the treatment after results of infantile poliomyelitis.

In two cases operated upon by Blanc the patients had suffered a paralysis of the anterior group of the leg muscles the resulting deformity amounting almost to equinus. Blanc first practiced a prolongation of the Achilles tendon and eased the tibial anterior tendon and the extensors of the toes. He then sought out the anterior branches of the peroneal nerves which innervate these muscles and sectioning a length of nerve united its lower end to

another resected from the most posterior branches of the internal popliteal sciatic nerve. The upper extremity of the dissected peroneal branch nerve was inverted upon itself in the same manner as is done in nerve extremities of amputation stumps.

The results at the end of three months were highly satisfactory and showed a greater tonicity in the anterior muscles of the leg and some movements of dorsal flexion. It is probable that the nerves which activate the paralyzed muscles are not in a state of complete atrophy and that an incomplete regeneration is accomplished by means of the nerve anastomosis.

W. A. BRENNAN

**Clarke J. M. Gunshot Wounds of Peripheral Nerves.** *Bristol M. Chir. J.* 1917 XXXV 61.

The nerve may be completely divided, partially divided or injured by compression scar tissue callus or some foreign body. Location of the injury rests on an anatomical basis aided by X-rays. The extent of the damage is estimated by motor and sensory paralysis, muscular wasting, pruritus, hyperesthesia, trophic lesions and electrical reactions. Pain and hyperesthesia mean partial injury; if these are replaced by analgesia and tactile anesthesia, compression is probably occurring. Severe forms of trophic disturbance such as ulcers occur in complete division.

Secondary operation may be done after the wound is healed or after the amount of permanent paralysis is determined. Preliminary treatment con-

its in keeping the limb wrapped application of a splint to keep the paralyzed muscles relaxed daily massage and electrical treatment A prophylactic dose of tetanus antitoxin is desirable Operation is advisable (1) in complete division (2) where paralysis is stationary after four months (3) where improvement suddenly stops with signs of compression (4) where there is great pain (5) with the occurrence of trophic ulcers After suture electrical treatment should not be begun for some time Cases of nerve concussion recover in six weeks Partial division should recover from two to six months The greater distance the site of the lesion is from the periphery the longer it takes to recover

Operative findings may show the following

1 The nerve may appear to be normal  
2 There may be complete division of the nerve with a bulbous swelling at the end of the upper segment succeeded by a mass of scar tissue of variable thickness and adherent to the surrounding tissues The treatment adopted is to free the two ends of the nerve cut off the upper segment through the upper end of or above the bulbous swelling so as to expose visible nerve bundles with no excess of interstitial fibrous tissue and suture with catgut The junction may be wrapped in Cargile membrane or with saphenous vein but often nothing is used

3 There may be a bulbous swelling on the nerve adherent to the track of the bullet and it may be doubtful whether the nerve fibres pass through it or are interrupted In such a case the nerve is stimulated electrically above and below the bulb If in the case of a small or medium sized nerve not the sciatic any muscles supplied by it contract the scar is freed and wrapped in saphenous vein If there is no response the scar is excised and sutured

4 A large nerve such as the sciatic may show symptoms of a partial division and at operation part of the nerve shows a scar The best procedure is to take out a quadrilateral including the scar and by splitting the nerve trunk up and down to bring the two ends together leaving the intact portion of the nerve undisturbed

5 The nerve may be intact but pressed upon by a bullet or shattered bone The treatment is to remove the cause of pressure but although this relieves pain at the time it is apt to return during the process of healing and prove intractable

L. S. ER THWOLF &

McCurdy S. L. Injury of the Musculospiral Nerve *Am J Orth Surg* 9:7 x 71

Injury of the musculospiral nerve practically destroys the usefulness of the hand When this nerve is severed or its continuity destroyed in any manner the extensor forearm group of muscles are inactivated with consequent inability to extend the fingers or to extend the hand upon the forearm The flexors of the hand and fingers contract and produce in time an exaggerated contraction of the fin-

gers the hand assuming a condition of claw hand The author states that this was first described by Volkmann and is known as Volkmann's ischæmic paralysis and contraction Any force which may be brought against the musculospiral nerve in its course from the cervical vertebrae along the brachial plexus or along the humerus to the extensors of the forearm will produce a condition of wrist drop Obstetric paralysis that variety of brachial injury which occurs during parturition is not infrequent

Musculospiral injury results most frequently from fracture of the shaft of the humerus and epiphyseal separation of the lower end of the humerus

Another variety of musculospiral injury is due to gunshot wounds where the nerve is severed in its course without injury to the bone When the entire nerve has been severed the result will be complete paralysis of all muscles in the extensor group both of the thumb and the digits in cases where the injury is in the neighborhood of the elbow In advanced cases the deformity is quite marked the hand assumes an angle of 45° or more the wrist is flexed the first row of phalanges is extended and the second and third markedly flexed assuming a claw shape

Treatment is based upon the length of time which has elapsed from the time of injury to the time the case comes under observation Section of the nerve either in cases associated with fracture or following stab or gunshot wound requires immediate suturing of the nerve

McCurdy records in detail several cases treated by himself In one case he operated 5 days after the injury was sustained and sutured the end of a musculospiral nerve Owing to the movements of the arm the lower end of the nerve had retracted so that the ends were about an inch apart They appeared to have healed over so completely that it was necessary to freshen the ends

The ends were brought end to end and the nerve sheath sutured with No. 00 catgut a very fine curved needle being used Five interrupted sutures were used to approximate satisfactorily the ends of the nerve Another row of sutures was used to adjust what appeared to be the original environment of the nerve after which the wound was closed with silk-worm gut sutures The patient made a splendid recovery

The second case was similar The man returned to duty as a railroad conductor within ten months of the date of the accident He was greatly improved

In a third case McCurdy transplanted the flexor carpi ulnaris into the extensor communis digitorum as follows The muscle is dissected freed about four inches above the head of the ulna through an incision of about two inches

The second step in the operation is to sever the flexor carpi ulnaris subcutaneously at the insertion into the carpal bones A third incision is made over the dorsum of the forearm just above the annular

ligament exposing and dissecting out the extensor communis digitorum tendon. This requires an incision about an inch or an inch and a half long. The flexor carpi ulnaris is now drawn through the incision on the outer surface of the ulna. In some instances it may be necessary to sever this muscle from the wrist by an open incision rather than subcutaneously in order to free properly the end of the tendon from its attachment.

The next step is to pass a dressing forceps from the incision on the dorsum of the wrist underneath the skin around the ulna through the first incision. The free end of the flexor carpi ulnaris is now drawn through underneath the skin to the dorsum of the

wrist. The fingers are overextended and held in this position by an assistant while the flexor muscle is sutured into the tendon of the extensor. It is best to split the extensor to permit the end of the flexor to be more securely sutured so that a more firm repair will result.

Operative interference is also required in the typical Volkmann's ischæmic paralysis and contraction. The flexor tendons are stretched under an anæsthetic. A splint is used and after months of effort the fingers are restored to almost a straight line. The operation in one case did not however restore normal range of flexion and extension but permitted sufficient motion to restore partial use of the hand. PHILIP LEWIN

## MISCELLANEOUS

### CLINICAL ENTITIES—TUMORS ULCERS ABSCESSSES ETC

Kolmer J A. The Diagnostic Value of Examinations of Cerebrospinal Fluid. *Med Cl A* 1m 1971 355

It is readily understood that with the majority of diseases of the cerebrospinal system accompanied by demonstrable changes in the cerebrospinal fluid the diagnostic value of spinal puncture and an examination of the fluid is best appreciated with a complete analysis of the fluid by a physician who understands the underlying principles governing the pathologic changes which may occur. Aside from finding the specific microorganisms of a disease in the cerebrospinal fluid there is no other single specific change except first possibly the Wassermann reaction which when positive indicates that the patient is infected with syphilis and that the nervous tissues may be involved and secondly the colloidal gold reaction which when yielding a typical pyretic curve indicates paresis. Even in these latter conditions other data such as a protein determination and total cell count are valuable in aiding the diagnosis as exemplified in the four reactions of Nonne namely a total cell count protein determination and Wassermann reaction with cerebrospinal fluid and blood serum.

In acute meningitis the cloudy or purulent fluid in which the micro organisms are found by smear or culture is sufficient for diagnosis although cell counts and protein determinations furnish data indicating the severity of the infection and serve as guides indicating regression or progression of the disease under treatment. In practically all other conditions more complete studies according to the following outline are necessary before the full value of a cerebrospinal fluid examination is to be gained.

1 Pressure as taken with the Landon manometer and in a uniform manner preferably with the patient lying on the left side

2 Physical appearance of the fluid

3 Total cell counts made with fresh warm fluid and preferably with the Fuchs Rosenthal chamber

4 Differential cell counts made with direct smears of the sediment secured by thorough centrifugalization or by the Alzheimer method

5 Protein determination employing the Noguchi or Kaplan tests

6 Sugar determinations employing the simple and rather crude Fehling's reagent or the more accurate micro method of Bang

7 The Wassermann reaction employing graded amounts of fluid up to and including a dose of at least 1.5 ccm

8 The Lange colloidal gold test employing an acceptable reagent

9 Bacteriologic examinations if the presence of bacteria are suspected by direct examination of stained smears of sediment or cultures of the sediment on appropriate culture media. Animal inoculation tests may be employed for the detection of tubercle bacilli and *Treponema pallidum*.

EDWARD L CORNELL

Pepper O H P and Pearce R M. Myeloma with Metastasis to Liver and Spleen. *J Med Research* 1917 XXXV 171

The view that true myeloma does not form metastases has been emphasized ever since the first recognition of this condition and doubt has frequently been cast upon the few cases of myeloma in which it was claimed that metastases were found. After careful study of the evidence presented the authors state that some of these cases scarcely seem to belong in the group of myelomata while in still others the claim of metastasis formation seems to have been due to a careless use of the word metastasis or to a misinterpretation of a direct extension of the myeloma process from bone to adjacent soft parts.

These errors they believe can be readily understood the extreme confusion in the classification of the group of tumors and the variability of the

cell type make the proper identification of a border line case very difficult. In addition some authors have described cases of myeloma in which they occurred a large skeletal tumor which they considered primary and a number of smaller nodules also in the bones which they called metastases. Thus the authors believe to be undoubtedly incorrect as many cases with diffuse or multiple uniform in olivoments could tend to prove. There is however a small group of cases in which the tumor described seem directly to belong to the myeloma group and consequently with which there were found foci of osteolytic tumor tissue some distance from the body in olivement.

The authors give a summary of which case as are found in literature and report a case in which they believe belongs in this group. The case is usually interspersed in that no definite nodules of myeloma were demonstrable by X-ray or autopsy and because these were found throughout the liver and spleen which are grossly normal a diffuse infiltration of microcytes for identification with those of the bone tumor. These findings seem to justify a claim of tumor metastasis from the tumor in this case.

From their study the authors draw the following conclusions:

A case of multiple myeloma is reported in which the tumor cells were of the bone marrow plasma cell type. The tumor cell did not show granules by oil stains. Group of identical cells were found in the liver and spleen.

The literature on this is reported for authentic cases of multiple myeloma in which foci of the tumor cell demonstrated in the liver, spleen, ovary, and lymph nodes. The opinion of the authors that these epithelial metastases rather than homologous neoplasms.

G. E. F. B.

Henderson, Y. and Hagg, D. H. Observations on Surgical Shock. A Preliminary Report. J. I. W. 1917, 971, 975.

The condition of urgent shock usually associated with extensive hemorrhage is always the result of prolonged and severe sensory stimulation. As stimulation of sensory nerves induces a discharge from the suprarenal gland it may be assumed that the rate and duration of secretion is proportional to the intensity of the stimulus. Whether a prolonged condition of excess of epinephrine in the circulating blood in producing shock is one of the questions attempted to decide.

Prolonged excessive secretion of epinephrine if it occurs under pain is not a critically important factor in the production of shock. It is therefore improbable that surgical shock is a result of excessive secretion of the suprarenal glands secondary to sensory stimulation.

Apparently the reduction of the carbon dioxide content of the blood by the cessation of breathing under pain or other excitement results either in

loss of alkali or a formation or retention of other acid. This acidosis or reduction of alkaline reserve whatever its details is at least in respect to respiration clearly of a compensatory character for otherwise the intense acapnia would always quickly result in a fatal apnoea as in fact it frequently does. It is particularly noteworthy in support of this concept that in the experiment with ether in which the animal was made to breathe through a long tube thus keeping the alveolar carbon dioxide tension at a nearly normal level the threshold degree of ether acidosis was correspondingly decreased.

In the metabolism experiment in which observation of the oxygen consumption and carbon dioxide elimination were made before and after the production of shock it was found that the condition of shock involves a profound depression of metabolism the oxygen consumption falling 45 per cent in the experiment and 50 per cent in another. The depression of metabolism is progressive and ends in death.

The introduction of the gas mask in warfare has cut down man to a few of apparatus by which he breathes gas in the air. For practically it is directly applicable on the battlefield where human mortality is regularly available for the study of shock. By this means it is hoped to get an insight into the question whether rebreathing gas in pressure or decompression the development of shock in severely wounded men as it does in animals under experimental conditions.

For those already in shock and breathing freely, rebreathing involves a dangerous limitation of oxygen. In this condition the administration of percentages of carbon dioxide approximating the normal alveolar air by the same method used for administration of oxygen is the measure which in the light of previous work in laboratory is certainly worthy of trial.

EDWARD L. COAKLEY

Arribald, E. W. and McLarn, W. S. Observations upon Shock. The Lethal Reaction to the Condition of Severe War Surgery. I. S. G. 1917, 971, 28.

The difficulties of transporting wounded from the trenches are greatly deplored. Being conscious the range of the fire of the enemy the wounded are thus exposed to fatigue, cold, wet and profuse loss of blood. These conditions greatly predispose to shock.

The authors observations can be summarized as follows:

1. Wounds of the chest and head very rarely present symptoms of shock.

2. Practically all cases of shock were wound of the locomotor system or of the abdomen.

3. In practically all of the recoveries the patients were kept warm.

4. Fall of temperature is a fatal indication death following when the temperature was below 92°.

5 When shock was marked the blood pressure was below 75 or could not be obtained

6 Pulse was always rapid and respiration was increased

Hæmorrhage involving a moderate loss of blood tends to aggravate shock. Intravenous salt solution which is helpful in hæmorrhage is useless in shock. It acts rapidly but is not lasting holding up blood pressure only for a few hours. Colloid solution of 25 gr in a liter of saline was more effectual in hæmorrhage than the saline alone. Blood transfusion was disappointing and while the color was improved and blood pressure elevated it had no more permanent effect than the gelatin and salt. Blood transfusion for loss of blood is not accompanied with the complex mechanism by which blood is continuously withdrawn from the circulation in shock. Intrutin increased the pulse but was transitory and of real value only in mild shock. Adrenalin is contra indicated because of its constricting action on liver capillaries.

Diastolic blood pressure is of importance in advanced shock. Systolic at 100 with diastolic at 20 or 40 indicates shock. When intravenous saline fails to raise the diastolic pressure shock is still present and the patient will probably die. If the systolic sound is first heard only during expiration and becomes continuous only some ten to twenty mm lower there is always shock and blood pressure is low. Such cases frequently die. Patients rarely recover whose systolic blood pressure is 65 or below. Hæmorrhage alone will not influence the blood pressure materially unless accompanied by shock.

The author enumerates the causes of shock and concludes with the statement that while a low blood pressure is one of the most constant signs of shock, it is neither the essential factor nor the cause. Blood transfusion both experimentally on animals and clinically failed to overcome shock. The author believes that there is a local asphyxia when the bowel is long exposed but primarily it is more probably in the nature of an inhibition by which capillary tone is lost and the balance of the local chemical changes between blood and tissue or cell fluids is upset. Cold and fatigue predispose to shock perhaps by cooling the blood.

Recent English work the author states has demonstrated in shock a serious loss of plasma into the tissues with a consequent rise in the hæmoglobin and the viscosity of the blood in the vessels. In shock produced by histamin Dale and Laidlaw showed that one half the plasma had disappeared into the tissues. It is believed that in shock this produced the tone of the capillaries is lost and the blood stagnates. The author accepts this theory as the point of primary failure in traumatic shock. Contributing factors are lack of blood to the venous system gradual failure of the heart and of the coronary supply. The capillary failure leads to insufficient oxidation which results in asphyxial acidosis. The acid substances thus formed cause

the proteins of the tissue to imbibe water from the blood.

Hypertonic salt solution at twice decinormal strength would be of some promise since its chief effect would naturally be to call back into the blood the plasma lost to the tissues. M A BERNSTEIN

Bartlett C J and Ozaki Y. Phagocytosis in vivo under Various Conditions. *J Med Research* 1917 xxxviii 139

The authors believe that the great increase in knowledge regarding bacterial phagocytosis which has resulted from opsonic studies of the past decade and a half concerns chiefly phenomena demonstrated in vitro. It is evident that such phenomena may not always indicate the extent of phagocytic activity occurring in the immunizing processes as they take place in the living animal body. In other words the same thing may or may not occur in vivo as in vitro.

In a recent report made by the authors it was evident that the relative number of cocci ingested by leucocytes as compared with those in fixed cells varied under different conditions. It seemed to them desirable to follow this observation further. In these in vivo experiments they were able to follow the process of phagocytosis as it is brought about by the activity of untreated native leucocytes and fixed cells in co operation with the blood plasma.

From a long series of experiments which the authors give in detail they draw the following conclusions.

The method of the estimation of phagocytosis in vivo by means of bacterial injection with subsequent microscopical examination of the tissues is available in order to study the processes of phagocytosis which actually take place within the living organs and tissues in normal as well as abnormal conditions.

The phagocytosis in vivo of micrococcus aureus by leucocytes seemed to be slightly lowered in acute phosphorus poisoning and occasionally after chloroform anaesthesia. It was hardly interfered with by fasting of a moderate degree.

The phagocytosis in vivo by leucocytes did not undergo any marked deviation from normal after general anaesthesia. On the other hand it has been generally recognized that chloroform as well as ether anaesthesia reduces the opsonic index to a more or less marked degree. The co operation of some constituents of the blood plasma other than those in the serum may exert a compensatory influence upon the process of bacterial ingestion. This is the probable explanation for the discrepancy between the phagocytosis in vivo and that in vitro the authors believe.

The phagocytosis in vivo of micrococcus aureus by leucocytes showed a marked diminution in activity in the advanced stages of an acute general infection caused by the same micro organism. The process they believe to be probably of specific nature.

The phagocytosis in vivo of micrococcus aureus

by leucocytes in the course of an acute general infection caused by bacillus col seemed to show but little change from that in normal animal. This fact probably has some significance in considering secondary and mixed infections.

The authors draw attention to the fact that it has already been noticed that the bacteria introduced into the blood stream are chiefly detained by the spleen and liver if the lungs be excluded where the detention of bacteria is chiefly temporary. This peculiar biological property of the spleen and liver was if not completely partly lost when these organs underwent a marked degeneration. This was probably due to the lessened vitality of the macrophages present in these organs.

When the leucocytes became less capable of ingesting bacteria the phagocytic tissue cells of the lung spleen and the liver acted to a greater or less extent in a compensatory way for the deficient part of leucocytes. This fact is of great significance for the elimination of bacteria from the circulating blood.

GEORGE E. BEI BY

Smith E. F. Embryomas in Plants. *Bull. J. H.*

*Ill. Ph. S. Ho. p. 97. 77*

In April 1906 the author announced the discovery of a new type of crown gall one containing numerous leafy shoots and he showed that he could produce it at will by making his bacterial inoculants in the axils where there was a dormant bud. The exception to this rule is that he had produced it on the blade of a leaf where there were no buds and once in an interior that frequently the secondary tumors were of the same type as the primary tumor. The full of possible leafy shoots and finally that he regarded it as true embryoma comparable to those occurring in animals. Since that time the author has been experimenting continuously and now offers further data on the production of these anomalous crown galls which follow the same scheme of development. He considers to be atypical teratoid tumors. With one exception on all the illustrations used are of tumors which were the result of pure culture bacterial inoculations although the author has since discovered that leafy crown galls occur in nature on various plants e.g. on the rose and on the carnation.

Crown gall is a common tumor due to a white rod shaped polar flagellate schizomycete according to Smith. It occurs on many kind of plants wild and cultivated but chiefly on the latter. In certain striking ways this tumor resembles malignant animal tumors. For earlier literature on its structure and etiology and on the morphology and biology of the organism causing it Smith refers to *Bulletins* 13 and 255 of the Bureau of Plant Industry U. S. Department of Agriculture. He also refers to his article in the *Journal of Cancer Research* April 1916 in which he specially summarized his conception of its relation to human cancer and in *Science* June 23, 1916 in which he endeavored to answer various objections to his views.

The commonest form of the tumor Smith states is a sarcoma that is a hyperplasia developed out of conjunctive tissues. In 1906 for the first time this tumor was produced with a definite micro-organism by Smith and his associates since which time they have produced hundreds of crown galls with pure cultures of their bacterium tumefaciens. Concerning whether he therefore believes not only in animals but also in plants if his interpretation is correct.

The parasite was intracellular and invisible or at least very hard to demonstrate in tissues but can be isolated by the methods of the bacteriologist. It can also be isolated on slides and stained by diffusion in sterile water from the cut surface of fresh young tumors and is then seen to be about the same size and shape as when grown in cultures. It was not very abundant in the tumor and was not demonstrable in the vessels or between the cells.

It did not kill the tissue but stimulated them into abnormal growth by means of its diffusible products acid and alkaline. Death of tissues came about in other ways e.g. by loss of water or by the destructive action of other organisms the naked tumor offering unusual facilities for their entrance.

The ordinary crown gall gave rise to parenchymatous tumor strands on which secondary tumors developed with the structure of the mother tumor. Many of these secondary tumors were seen especially on the Paris daisy but so far as observed by the author not one of them was an embryoma.

Many of the experimentally produced tumors were embryomas that is sarcomas containing rapidly developing abortive parts of the young plant—roots stems leaves and flower buds or cells containing floral pigment. These tumors were caused by the same parasite as the ordinary crown galls. The difference between the two types of tumor being due to unlike reactions of the various tissue. If conjunctive tissue only was stimulated a simple sarcoma resulted but if on the contrary the infected conjunctive tissue cells were close to totipotent cells then they all began to grow and a complex tumor resulted an embryoma.

When the embryomas gave rise to secondary tumors the latter were either embryomas like the mother tumor or simple sarcomas. In this particular also they followed the law of animal embryomas. The organs or tissue fragments in the embryomas were feebly vascularized and absorbed at various stages of development usually early. The organs and fragments of organs in these tumors were often monstrous i.e. simplified reduced duplicated fused abnormally oriented or asymmetrical and frequently the tissues also were subsequently invaded by the sarcoma.

Mosters occur red frequently in nature and were produced repeatedly in various ways e.g. by grafting or by fragmentation of eggs but are either not satisfactory or only accidentally so. This is the first time so far as the author knows that embryomas have been produced experimentally and

certainly the first time they have been produced by means of inoculations introducing a micro organism.

Whether epitheliomas and carcinomas can also be produced in plants by bacterial inoculation remains to be determined but the author believes they can be. He has obtained the first stages of cell division in epidermal cells by bacterial inoculation and sees no reason to doubt that under favorable conditions the epidermis would continue to divide and would follow its own law of growth in tumor development i.e. downward into the subepidermal tissues. Thus he leaves for further experiment.

Frequently normal tissues were torn and crushed by the enlarging tumor in mass invasion but there was also an individual invasion on the part of tumor cells and vessels. The author did not determine whether surrounding tissues were also absorbed.

GEORGE E. BRUBA

**Simonds J. P.** Study of Low Blood Pressure Associated with Peptone Shock and Experimental Fat Embolism. *J Am Med Ass* 1917 lxx 883

In a series of experiments on animals by injecting peptone and fat into a vein symptoms were produced similar to those of surgical shock. A fall in blood pressure was noted in both fat embolism and peptone poison. The following observations were made:

1 The drop in blood pressure from peptone poisoning is very rapid the lowest level being reached in thirty seconds. The drop in blood pressure from fat embolism is slow requiring several minutes to reach the minimum.

Recovery of the animal from non fatal doses of peptone is much more rapid than from fat embolism.

3 In fat embolism the toxic effects of ether appear to be markedly intensified and if the ether is not withdrawn the animal dies.

4 In peptone poisoning the greater part of the blood is accumulated in the liver and the veins of the splanchnic area. The accumulation of blood in any one organ is due to gravity. Thus if the foot of the board to which the animal is fastened is elevated the intracranial sinuses are found at necropsy to be greatly distended with blood. In peptone shock the low blood pressure is due to a loss of tonus in the vessels of the splanchnic region. In fat embolism the passage of blood through the lungs is mechanically interfered with.

5 Edema of the lungs appears to be a fairly constant accompaniment of experimental fat embolism but not of peptone shock.

6 A marked rise in blood pressure from nicotine in peptone and anaphylactic shock was obtained only when the nicotine caused a temporary dyspnea. The rise was due to the mechanical effects of respiratory suction on the reservoir of blood in the liver and not to the action of nicotine on the vasomotor apparatus.

It was suggested that the mechanical effect of

dyspnea might be of value in the treatment of any condition of low blood pressure in human patients in whom there was a large reservoir of blood in the liver. This can be accomplished by respiratory suction by drawing the blood into the right heart.

Although the author has not used carbon dioxide in his experiments he has observed such a rise of pressure in peptone poisoning and in fat embolism. It has been observed that dyspnea causes a rise in blood pressure in both fat embolism and peptone poisoning. The difference in their behavior is as follows:

1 In peptone shock the rise is sharp dropping when respiration becomes normal in fat embolism the rise is more gradual and more sustained.

In fat embolism the same rise occurs from rapid respiration which follows removal of the anesthetic.

3 A rise is also induced by vigorous artificial respiration by means of a bellows. Neither of these methods has produced a rise in pressure in peptone shock.

The author concludes that fat embolism can be dislodged from the lung by vigorous respiration with bellows but there is a danger of forcing the embolus to the brain.

M. A. BERNSTEIN

**Schamberg J. F.** The Causes of Reaction After Salvarsan. *Med Clin N Am* 1917 i 443

A variety of factors may be responsible for the production of reactive phenomena but some are relatively unimportant as compared with others. These various factors may relate (a) to the individual (b) to the technique of administration and (c) to the drug employed. There can be no doubt that individual susceptibility plays a part in reactions.

Variations in the drug with the consequent development of traces of impurities are more responsible for reactions than any other factor. Salvarsan of absolute chemical purity does not exist; it invariably contains certain impurities. The early vasomotor symptoms are due to impurities in salvarsan. The author has devoted much study to a search for the particular chemical variation which gives rise to these phenomena but thus far his efforts have not been attended with success. He has therefore termed the substance X.

Substance X has a powerful vasoparetic influence. It induces dilation of the blood vessels followed in many instances by leakage of serum into the tissues. It is this serous exudation which gives rise to puffing of the eyelids or the lips which is at times observed. The paretic influence upon the vessels may be so severe in some cases as to lead to collapse of the patient. Whether the presence of substance X could play a part in the production of edema of the brain or encephalitis hemorrhagica in the cases in which these rare complications develop is rather doubtful in view of the fact that these symptoms usually appear late.

EDWARD I. CORNELL



McPherson R R Port of a C e of Cystic Lymph  
ng om B H L<sub>2</sub> g I H p N Y 97

McPherson reports a case of cystic lymph angioma occurring in an infant who died on the thirteenth day post partum from severe intestinal hemorrhages. The child was born with a large cystic tumor covering the entire left thorax extending up beneath the left clavicle and scapula and down over the inner surface of the humerus as low as the upper third of the forearm. In certain areas the tumor extended beneath the muscles. Section of the tumor showed it to be composed of a mass of varying sizes partially filled with a pale straw-colored fluid. Some septa were 3 mm in thickness while others were very thin. Microscopically the septa were composed of fibrous tissue though out which were numerous small cysts lined by endothelial cells. The larger cysts were also lined by endothelial cells which had been somewhat flattened out.

H B MATEVS

Hull A J Treatment of Burns by Paraffin  
C d J M & S 917 L 7

A new treatment for burns by the use of a preparation of paraffin known as amli was utilized in a military hospital by Safford. It consisted in washing the burns with sterile water and spraying a layer of ambrine on the surface. The burns healed rapidly, constitutional symptoms abated, pain was reduced to a minimum and no appearance of infection was observed.

Because of the fact that mbrine as a scrub formula similar preparations of paraffin containing resin, essential oils, and tars have been used. Experiments resulted in the preparation of a formula for paraffin. The contents resorcinol 1 per cent, eucalyptus oil 2 per cent, oil 5 per cent, paraffin 93 per cent, paraffin 67 per cent. When resorcinol is not obtainable beta naphthol 25 per cent may be substituted. The amount of paraffin durum increased to 65 per cent. No paraffin is said to be quite as efficacious as ambrine.

The author describes the method of treatment as follows: The burn is washed with sterile water and dried. It is then covered with a layer of paraffin at a temperature of 50°C. The paraffin may be applied with a broad camel hair brush or by means of a spray. A thin layer of cotton is then placed over the burned area and a second layer of paraffin applied. The dressing is completed by applying wool and a bandage.

P H KREUSCHER

Pratt Tetanus and Serotipy (Tetanus)  
thé p ) B H Ed P 97 337

From his experience with a large number of cases observed in the author is of the opinion that antitetanic serum is not only preventive but is also curative. The latter fact appears to him deducible from

1. The amelioration observed in the prognosis of actual tetanus cases which show only 37 per cent in his personal cases, some of these deaths were due to septic complications.

The evident effects produced by local injections of serum on the symptoms of puerperal convulsions in benign and localized cases. They have been observed as specially efficacious in local edemas.

The therapeutic results were the better according to the serum doses employed. W A BRENNAN

## SERA VACCINES AND FERMENTS

Manwaring W H and Crowe H E Role of  
Hpt T U in the Acute Anaphylactic  
Reaction J I 1 9 5

It was pointed out in 1910 that the pronounced fall of blood pressure which is the essential feature of the acute anaphylactic reaction in the dog is not due to a direct action of the foreign protein on the sensitized blood vessel but is an indirect phenomenon due to the explosion formation or liberation of products or substances by the latter.

The observations led the authors to study the role of hypotensive substances in anaphylactic guinea pigs by the application of perfusion method to isolated organs. Two hundred gram guinea pigs sensitized by a single intraperitoneal injection with 0.025 cm<sup>3</sup> of serum extracted from two to six days after the injection.

The method described (a) hypotensive perfusion, affixed cannula in the portal circulation through the peritoneal fluid under constant pressure and temperature regulation of the main portal vessels of the abdomen below the liver and inferior vena cava above the diaphragm and (b) pulmonary perfusion ligature of the ductus arteriosus affixed cannula in the pulmonary artery allowing the perfusion fluid under constant pressure and temperature escape of the perfusion fluid from the open left auricle cannula in the thorax.

The normal liver had slight detoxicating action on foreign protein in blood mixture sufficient to prevent the anaphylactic response in subsequent tests in the normal lung. The detoxicating action however was very sufficient to cause an appreciable difference in subsequent tests with anaphylactic lung.

The anaphylactic liver had a marked detoxicating action on foreign protein in blood mixtures usually sufficient to prevent all but a trace of the anaphylactic response in subsequent tests with anaphylactic lungs. The detoxicating action was more pronounced in perfusion with hypotensive blood than with normal blood.

The detoxicating action of the anaphylactic liver the authors state is not due solely to the presence of naphylactic humoral elements. The release of naphylactic toxin from the fixed liver cell and the detoxicating action not

due to a removal or destruction of the foreign protein in the perfusion fluid. Their evidence pointed to the explosive formation or liberation of vasodilator and bronchodilator substances by the sensitized liver cells.

From their study the authors draw the following summary.

The liver of a normal guinea pig repeatedly perfused with a mixture of foreign protein and defibrinated normal or anaphylactic blood produced little or no change in the toxicity of the perfusion mixture on subsequent tests with isolated anaphylactic lungs.

The liver of an anaphylactic guinea pig similarly perfused usually rendered the perfusion fluid almost completely non-toxic for these lungs.

This reduction in toxicity was not due to the presence of anaphylactic humoral elements but to a specific functional action of the fixed hepatic cells. The reduction in toxicity was not due to a removal or destruction of the foreign protein in the perfusion fluid.

Evidence pointed to the explosive formation or liberation of vasodilator and bronchodilator substances by the sensitized liver cells.

GEORGE F. BLILBY

Smith C. E. and Solomon H. C. **Bruck's Sero-Chemical Test for Syphilis. A Report of Four Hundred Cases Compared with the Wassermann Reaction.** *Bost. M. & S. J.* 1917, LVIII, 321.

Bruck's original technique is given but with some modifications by the authors. To 2 ccm of distilled water is added 0.5 ccm of serum and the mixture shaken thoroughly. To this 0.3 ccm of acidum nitricum 5 per cent of U. S. I. or that of German pharmacopoeia specific gravity 1.140 is added slowly from a precision pipette care being taken not to allow it to flow down the sides of the test tube. Gentle shaking while the acid is being added prevents the formation of a flocculent precipitate in normal serum. Each tube must be shaken in the same manner to obtain uniform results. It is allowed to stand at room temperature for six or seven minutes if allowed to stand 15 or 20 minutes practically all sera will give a positive reaction. The tube should be shaken gently once or twice during this period. Then 16 ccm of distilled water at room temperature is added this should be allowed to flow gently down the side of the tube without disturbing the precipitate. In the normal reaction the precipitate will begin to mix with the solution at once and the fluid become cloudy while in syphilitic cases the precipitate will be composed of large flakes which show little tendency to mix with the solution or to cloud the fluid. The tube is then inverted three times but not vigorously. In the positive test there will be found a gelatinous precipitate upon standing while the slight precipitate in the normal is redissolved by inverting the tube.

The serum is obtained by allowing the blood to stand at room temperature for an hour and then

centrifuging. Serum that has stood for some time may be used as well as bloody serum. The same result is given with or without inactivation. Postmortem blood also gives results. The best sized test tube to use is 13 by 1.0 cm.

The conclusions drawn are as follows.

1. Results of the Bruck sero-chemical test in 405 cases are presented. In 101 of these cases there were definite clinical manifestations of syphilis in which the Wassermann and Bruck tests agreed positively in 74 cases or 75 per cent. The two tests agreed negatively in 12 instances and were at variance in 15.

In the group which showed syphilis of the nervous system there were 64 cases of clinically certain general paresis of which the Wassermann and Bruck tests agreed in 54 instances or practically 85 per cent. In other forms of central nervous system involvement the agreement was 100 per cent in the 15 cases tested.

3. In the cases with no apparent involvement of the nervous system the agreement was somewhat less being 6 per cent. This may be in keeping with the fact that the Wassermann test was not so strongly positive in these cases.

4. The advantages of the test are (a) the short time required to make the test, (b) the limited amount of apparatus necessary and (c) the simplicity of the technique.

5. The disadvantages of the test seem for the most part to be bound up in the personal variations that are apt to occur.

6. There is probably a quantitative chemical difference in the protein content of syphilitic and non-syphilitic sera the nature of which is not understood. It is hoped that this may be brought to light in the near future in the field of chemistry.

C. A. BOWERS

Thomas H. B. **Arthritis and Foreign Protein Chronic Rheumatism Relieved by Intravenous Injections.** *J. Am. M. As.* 1917, LXV, 70.

Typhoid vaccine is the agent usually employed. It is well established that typhoid vaccine does not relieve symptoms by the formation of antibodies but that the benefit derived is due to the protein content of dead bacteria. These are thought to produce a rise in temperature and hyperleucocytosis just as other proteins such as milk, maltose, horse serum, chicken serum and sodium nucleinate are thought to do.

Thomas' experience coincides with that of Mueller and Weiss the higher the fever produced the more favorable the result. The production of fever therefore is probably more therapeutic than is the formation of antibodies. Rest in bed and a search for the focus of infection are the first essentials in treatment. Gastrointestinal reaction is less severe if seven hours have elapsed since the last meal.

The tonsils, teeth, gums, sinuses, ear, eyes, urethra, prostate, gall bladder, heart, gastro-

intestinal tract and the female pelvis should be examined as possible sites of infection. In a few cases there were no demonstrable foci. A patient who had a severe multiple osteo arthritis of practically all the joints received 50 million typhoid vaccine intravenously is the usual dose in the subacute and chronic cases of osteo arthritis and if those cases react moderately the amount is raised cautiously at intervals of two or three days to 75 million bacteria at each injection.

Thomas saw no alarming symptoms or harm done in 86 cases. Moderately advanced heart kidney disease and pulmonary tuberculosis are not considered contra indications for the treatment except that more caution should be observed.

The immediate effect of the vaccine ranges from an uncomfortable sensation to severe chill, high fever and emesis. The chronic cases show less reaction. In practically all the cases relief from all joint pains a few hours after the injection is a pleasing effect. The pains usually reappear after an interval of two or three days but this interval decreases with the number of injections. After a course of from twelve to twenty four injections covering a period of from one to two months the patients are usually cured.

In reviewing the end results the relief from pain is not permanent in more than 30 per cent of cases. The remaining cases have done much better under this than under other forms of treatment.

J. J. KURLANDER

## BLOOD AND LYMPH VESSELS

Sencert L. The Treatment of Vascular Wounds at the Front (Dilatation of the splenic artery). *Lancet*, 1914, 2, 64.

Sencert says that in the case of a wound of one of the large vessels the life of the patient depends upon the extent of the cutaneous lesion. If this is large death occurs as a rule if it is small the blood may escape into a neighboring splanchnic cavity or it may fill the surrounding vessels. In a certain number of cases the hemorrhage is insignificant and there is spontaneous hæmostasis.

Spontaneous hæmostasis is more frequently observed in cases of complete section of the vessel than in lateral wounds and also in cases where the vessel has been subjected to contusions and ruptures of its interior coat. Sencert has observed 20 cases of injuries to the axillary, femoral and popliteal vessels arriving at the ambulance in which there was already spontaneous hæmostasis.

At the first aid station the application of an Esmarch band should be reserved for cases where it is probable that the hemorrhage is due to injury of a large vessel as constriction of a limb is dangerous and exposes the patient to the risk of an ischæmia or gaseous gangrene.

If the cutaneous wound is very narrow Sencert advises that it be closed by a Kocher hæmostatic

clamp. For the treatment of large wounds in the ambulance Sencert advises ligature and forcible pressure. If there is no hæmatoma and if the ligature is aseptic and placed in a healthy part of the vessel gangrene rarely occurs.

Compression of the collateral channels by a hæmatoma increases the danger of gangrene. The risk of gangrene is also very imminent if a thrombosis threatens the origin of the collateral channels.

In the cases of wounds of the popliteal, primary femoral and lower third of the axillary arteries ligature is dangerous. In these cases vessel suture should be attempted. Success depends upon (1) an aseptic condition of the wound (2) the placing of sutures in a healthy arterial wall without existing ruptures of the internal coat.

When the external cutaneous lesion is narrow the patient may show symptoms of diffuse hæmatoma or internal hæmorrhage simulating shock. For the diagnosis of hæmatoma the rhythmic expansion and the intermittent blowing sound revealed by the stethoscope and synchronous with the pulse are important but they may be absent.

Sencert indicates two symptoms which are rarely absent in cases of arterial lesions: pain and immobility. When a large artery is injured the patient complains of a deep violent pain which is not increased by external pressure. The limb is completely immobilized by muscular contractures. As a rule lesions of the large arteries are associated with a certain degree of shock.

Diffuse hæmatoma should be operated upon at once in order to remove the menace of ischæmia or infectious gangrene. Sencert advises immediate operation even if the external wound is punctiform in order to prevent infection and secondary hæmorrhage. It is easier and less dangerous to operate at once than after the formation of an aneurismal sac. In operating preventive hæmostasis is important. Sencert rejects the Esmarch band and finger compression as insufficient and recommends incision and dissection of the artery above the hæmatoma. A strong catgut is passed under the artery without tying it, angulation of the artery produced by its elevation on the catgut is sufficient to stop the current. For opening the hæmatoma large incisions and flap formations are recommended. The vascular lesion when uncovered is ligatured.

Sencert has operated upon 4 hæmatomata. Of those in olving dangerous arteries 5 cases of hæmatoma of the axillary region gave 1 death and 2 cases of gangrene. 9 cases of hæmatoma of the thigh gave 2 deaths and 2 cases of gangrene. 5 cases of hæmatoma of the popliteal region gave 2 cases of gangrene. Simultaneous ligature of the vein does not increase the danger of gangrene.

In cases of dry arterial wounds diagnosis may be difficult. Sencert recommends examination for pain and immobility and if the symptoms are positive operation is recommended.

W. A. BRIDGES

Gregoire R and Mondor H Notes on Vascular Wounds (Notes sur les plaies des vaisseaux) *Lyon chirurg* 1917 xiv 625

Since June 1916 the authors have observed 80 important vascular wounds. Of these only 11 reached the ambulance showing persistent hæmorrhage 8 being arterial and 3 venous. There were no immediate signs of hæmorrhage in 23. In such cases the vascular wound may be obliterated by the projectile or by the internal coat of the vessel if divided or even by a clot. Silent cases of this kind may recover spontaneously without any complication but also it may happen that the plugging clot may become detached and the man may die by hæmorrhage which has no septic origin. Hæmorrhage may likewise occur from the elimination of a necrosed piece of tissue which opens a contused vessel. For these reasons in injuries of the larger vessels it is always well to make a thorough examination of the seat of the wound. No patient with a vascular wound should be discharged without a proper operation.

In 16 cases there was diffuse hæmatoma without aneurismal symptoms. In this early stage the swelling rarely shows pulsation noted in only 4 cases. Two cases showed later pulsation. Two arteriovenous hæmatomata were revealed by a manifest thrill but intervention showed that there was no direct communication between the artery and vein.

One arteriovenous aneurism the carotid artery and the jugular vein was operated by ligation. Six cases of ischæmic gangrene necessitated primary amputation. Seven secondary amputations were performed for consecutive ischæmic gangrene.

In all cases the technique employed was ligation of the vessel or vessels above and below the site of injury. The authors do not favor ligation at a distance except in cases where the artery is deprived of its sheath for a certain length.

The immediate results in the 80 cases gave 74 recoveries and 6 deaths. Two of the deaths were due to secondary hæmorrhage and two to anæmia.

W A BRENNAN

Lenche R and Heitz J Results of Peri Arterial Sympathectomy in the Treatment of Post Traumatic Reflex Nerve Troubles of the Babinski Froment Type (Résultats de la sympathectomie péri artérielle dans le traitement des troubles nerveux post traumatiques d'ordre réflexe type Babinski Froment) *Lyon chirurg* 1917 xiv 154

The authors give very complete clinical histories of 18 cases of reflex nerve disturbances consecutive to war wounds which they treated by peri arterial sympathectomy. They have attempted to show what may be demanded and expected from sympathectomy in the treatment of contractures and paralysis of the Babinski Froment type.

The operation is performed by a thorough dissection of the cellular arterial sheath carrying the sympathetic vasomotor fibers. This denudation

should be for a length of 10 to 12 cm or if the artery is occluded the whole thrombosed segment is resected.

The results of the operations carried out demonstrate several facts.

1 The operation is followed after a short period of arterial constriction during the manipulations of the vessel by an elevation of the blood pressure in the operated limb.

2 Operation is always followed after the period of arterial constriction by an intensive vasodilatation lasting for several weeks and resulting in a considerable elevation of the temperature of the sub-jacent segment of limb.

3 The resection of an obliterated artery produces the same reaction of vasodilatation but even more intensive and lasting than sympathectomy by denudation.

4 Both operations have a striking action on the voluntary contraction of the muscles whose motor power was abolished before.

Circulatory disturbances in paralysis and reflex contractures are constantly accompanied by local vasoconstriction which may temporarily disappear by artificial heating. Hence the favorable action of peri arterial sympathectomy is satisfactorily explained by the vasodilatation and consecutively increased temperature produced and concerning muscular contracture by the intensified blood irrigation of the muscles which bring more oxygen and stimulates the process of dissimulation.

The disappearance of reflex disturbances contractures numbness cyanosis œdema etc is not always definitive at once and it may be advisable to aid the effects of vasodilatation obtained by sympathectomy by hot baths of paraffin and by suitable exercises. But in any case the resultant improvement even in the most severe cases is sufficient to justify the intervention.

Although sympathectomy is not proposed for cases in which the vasomotor and thermic disturbances are not pronounced the intervention is inoffensive. In no case where the operation was done was the patient's condition aggravated and in most cases the authors have observed a period of change which tended towards recovery.

W A BRENNAN

## POISONS

Manwaring W H Yoshio K and Crowe H E Fate of the Foreign Protein in the Acute Anaphylactic Reaction *J Immunol* 19 7 11 511

The authors group the principal theories concerning the nature of the acute anaphylactic reaction into two classes. Those of the first class picture the reaction as due to an increased receptor apparatus in the fixed tissues. Those of the second class conceive it as a result of an increased proteolysis by the body fluids. Believing that evidence of the validity or non validity of these

theories might be obtained by applying perfusion methods to isolated organs and tissues they therefore carried out a series of experiments

To 50 per cent defibrinated anaphylactic guinea pig blood was added 0.25 per cent to 1 per cent egg white or goat serum and the mixture was incubated fifteen minutes. No decrease in the amount of the foreign protein was observed when compared with a control mixture of the same protein in normal blood.

The immediate humoral anaphylactic reaction cannot be looked upon according to the authors as a hydrolytic cleavage or destruction of the foreign protein sufficient to prevent its giving quantitatively the specific precipitin reaction.

One tenth of one per cent to 1 per cent egg white or goat serum in Locke's or Ringer's solution or in 25 to 50 per cent defibrinated normal or anaphylactic blood was repeatedly perfused through the organs of normal animals and no decrease in the concentration of the foreign protein was observed on subsequent titration with a specific precipitin. Similar perfusion of the tissues of anaphylactic and immune animals gave results identical with those having normal tissues.

The authors found the tests with the lungs of anaphylactic guinea pigs to be of special interest. These perfused with the specific protein either in Ringer's solution or in normal or anaphylactic blood were thrown into typical anaphylactic reactions. The reactions however were not accompanied by a demonstrable decrease in the concentration of the foreign protein in the perfusion fluids. No demonstrable destruction or binding of the foreign protein by the fixed tissues took place during the acute anaphylactic reaction.

From their study the authors determined that perfusions of isolated organs and tissues with dilute foreign proteins furnish no evidence of a measurable destruction of the foreign protein by the blood serum nor of an appreciable destruction or binding of the foreign protein by the fixed tissues during the acute anaphylactic reaction. **GEORGE E. BEIT.**

**Anders J. M.** Diagnosis of Focal Septic Bacteriaemia & Sepsis. 1917. clxx. 319.

One should attempt to recognize the primary septic foci before systemic consequences become well established. In some cases other diseases and habits influence the condition as well as the infection in others a cure of the focal infection leads to a disappearance of the general symptoms.

Acute diseases commonly caused by septic foci are generalized tuberculosis, rheumatic fever, endocarditis, pericarditis, myocarditis, pyemia, gonorrhoeal arthritis, cholecystitis and appendicitis. Chronic diseases are arthritis deformans, myocarditis, myocardial degeneration, arterial fibrosis, chronic nephritis and septicopyemia. The foci may be multiple and may be primary and secondary.

It is of advantage to associate certain clinical

features with infections in particular parts of the body: the primary infection focus in arthritis deformans, acute rheumatic fever, chorea, endocarditis, gastric ulcer, appendicitis, myositis, myocarditis and glomerulonephritis is usually located in the head.

Infection cannot be attributed to one septic focus until all other possibilities have been ruled out. When making a diagnosis the following regions should always be kept in mind as possible foci: the teeth, tonsils, lungs, pleura, the posterior urethra, prostate, seminal vesicles, kidneys, bladder, uterus, tubes, ovaries and Bartholin's gland. The radiograph is a valuable aid and bacteriological examination is important.

In conclusion the diagnosis of a primary focus embraces the discrimination of non focal infections and the establishment of its seat and particular etiologic variety, both from a clinical and bacteriologic viewpoint supported by X-ray findings in many instances and also by expert opinion in cases of tonsillar and sinus involvement. The diagnosis of a primary oral focus demands the isolation of the streptococcus viridans. **C. A. BOWEN.**

## RADIOLOGY

**Col. L. G.** Localization of Foreign Bodies. *Am. J. R. & Ig.* 1917. 455.

The method described by the author is one previously published by him but brought up to date by embodying the principles of several methods used at the front. It consists essentially of a special caliper so placed and arranged that the shadow of a foreign body falls within a vertical ray passed through a ring and cross wire placed on the opposite sides of the part being examined. These points are marked on the body. The tube which is underneath the supporting table is then shifted 15 centimeters from the vertical ray and a second exposure made. By means of a sliding scale devised by Holland the depth of the foreign body can be directly ascertained without the use of mathematical calculations merely using the data obtained by the previous examinations. A second caliper somewhat like the other and called the surgeon's caliper is adjusted on the part examined in such a manner that the information obtained by the roentgenologist can be directly utilized by the surgeon during the operation. A semicircular piece of block tin similar to Flint's profundimeter may be used in conjunction with the above to correlate the part with a cross sectional anatomy in order to determine the relation of the foreign body to important anatomical structures. Detailed description with diagrams of appliances and technique used is given by the author. **ADOLPH HARTUNG.**

**Holding A. F.** and **Lang W. B.** The Treatment of Abdominal Tumors by the X-ray. *Am. J. R. & Ig.* 1917. 453.

Of all the methods for cure of cancer that have been offered the only one that has endured to the

present day is radical surgical removal. With the advent of the radio active substances radium and the roentgen ray more was claimed for them than they were actually able to accomplish for it is doubtful whether with the exception of basal cell epithelioma and certain growths with the morphology of sarcomata but with low virulence radio active measures *per se* cure malignant tumors except in the most infrequent instances and surgery is still the method resorted to. However it must be acknowledged that radiotherapy has become a valuable adjuvant to surgery in preventing recurrence after the main mass has been removed and in ameliorating the suffering of patients with an inoperable growth.

The squamous cell epithelioma because of its structure and clinical behavior is a neoplasm most unsuitable for radiotherapy. The author has never seen such growths affected by radium or the roentgen ray unless the dosage was pushed to such a point that to the physiologic action of the ray was added the action of a caustic. On the contrary the effect on basal celled epitheliomas is striking with no more dosage than is necessary to produce a physiologic effect.

It is always easier to reduce a metastasis than the primary growth because the cells on account of their recent advent in a given locality have not had sufficient time to establish vascular relations with the stroma and consequently such vessels are apt to be rudimentary in structure and easily obliterated.

Assuming that the foregoing hypotheses are true as the author believes them to be he urges that all operable tumors basal cell epitheliomas excepted be treated surgically at the earliest possible moment but that all such cases receive the benefit of pre operative and postoperative treatment with radium and roentgen rays or both. The author also urges that every case of inoperable tumor should be given the benefit of radiotherapy for while no promise of cure can be given more relief can be obtained in this than in any other way.

W. A. EVANS

#### Gray B. F. Some Essentials in Dental Radiography. *Dental Cosmos* 1917 lxv 874

After a short description of some of the fundamentals of roentgenologic technique and interpretation the author calls attention to some of the sources of error such as shadows cast by the overlying antrum and mental and palatine foramina lying adjacent to some of the apices. Excepting these he states that a dark area about a root is essentially an area of bone disintegration which means a focus of infection in practically every case. Partially filled root canals may harbor infection even though it has not progressed to the stage of producing bone disintegration at the apex of the tooth. This possibility should be considered when the patient has systemic troubles believed to be of infective origin.

ADOLPH HARTUNG

#### Duane W. and Greenough R. B. Report of Results of Radium Treatment at the Collis P. Huntington Memorial Hospital by the Cancer Commission of Harvard University. *Boston M & S J* 1917 clxxvii 359

The authors present a collective report of 642 cases of cancer and allied conditions treated by radium. The methods of obtaining the data are briefly stated, the variety and locations of the lesions treated are tabulated and results obtained in different classes are mentioned. The conclusions arrived at are as follows:

1. Many cases of advanced inoperable or recurrent cancer may be given benefit by treatment with radium.

In such cases the relief may include one or more of the following advantages: relief of pain, diminution of discharge, less offensive discharges, relief of hemorrhage, diminution in the size of tumor masses, even to their total disappearance, and improvement in the general condition of the patient. To these must be added the undoubtedly beneficial psychic effect upon the patient.

3. In a very small number of advanced and apparently inoperable cases improvement may occur such as to permit a radical operation to be performed.

4. In a certain proportion of cases of superficial non metastasizing types of cancer (about 35 per cent) and in a much smaller number of cases of metastasizing cancer radium is capable of destroying the clinical manifestations of the disease. Sufficient time has not elapsed to report these cases as cured and they are being kept under observation. In a limited number of cases recurrence after apparent destruction of the lesion has taken place. In certain situations as on the eyelids radium treatment of lesions is to be preferred to operation.

5. In keratoses, papilloma and other benign skin diseases regarded as precancerous radium is effective in destroying the clinical manifestations of the disease in from 48 to 60 per cent of cases.

6. In myelogenous leukæmia the beneficial effects of radium are pronounced and although recurrence of symptoms may take place the clinical advantages of radium therapy are very marked.

7. In malignant lymphoma, lymphosarcoma and Hodgkin's disease the lesions appear to be especially sensitive to radiation and definite though temporary benefit is obtained. When in accessible situations it would appear that the disease can be controlled by radiation for a considerable period of time.

8. In the treatment of many other tumors and diseases radium has been used with benefit depending largely upon the extent of the disease, its depth in the tissues and the practical ability to apply sufficient radiation to modify or destroy tissue or tumor growth. Among the conditions in which radium treatment has proved of special value may be mentioned recurrent or inoperable carcinoma of the cervix or of the body of the uterus.

Hodkin's disease and malignant lymphoma myelogenous leukaemia inoperable squamous cell carcinoma of the tongue jaw and buccal mucous membranes in non metastasizing epidermoid cancer and in the more benign lesions of keratoses papilloma and other so-called precancerous conditions

9 Radium therapy has proved so far to be of little benefit in recurrent carcinoma of the breast carcinoma of the stomach and intestine carcinoma of the glands of the neck by extension from cancer of the tongue mouth and lip and in general in deeply seated metastatic extension of cancer from any region

10 The use of radium in prophylaxis of recurrence after radical operation for the cure of cancer is not advised Where serious doubt exists as to the complete removal of the primary tumor and where the location of the suspicious area is superficial accessible and of small extent radium may be used with benefit but where a large area is to be considered as after operation for breast cancer because of the difficulties of covering the whole area with sufficient radiation the treatment is not to be recommended

11 The combination of radium therapy and operation by which a tumor otherwise inoperable is excised as thoroughly as possible the remaining tissues cauterized and subsequently subjected to radiation has yielded satisfactory results in several cases This method of procedure is specially adapted to the more advanced cases of rodent ulcer involving the face After a period of radiation and observation of the open granulating wound extending over several months secondary plastic operations have been performed to close the defects and the results up to the present time in a very small number of cases have shown no return of the disease

12 Of 64 cases treated with radium in this series 354 or 55 per cent received definite benefit

13 Although many cases of advanced carcinoma show no appreciable benefit from radium treatment it is also true that in no case yet observed has radium appeared actually to accelerate the growth of tumor tissue Patients have suffered pain and inconvenience from the effects of radium burns in certain instances but these have been of a temporary character The constitutional effects of heavy doses of radium are unpleasant and severe nausea and depression may occur but these also are chiefly temporary in character With continued and excessive dosage very profound constitutional effects may be obtained A serious diminution in the number of white cells in the blood is observed after continued heavy dosage This is a more lasting phenomenon and may be of serious importance in relation to the patient's resistance to infection In no other respect has radium been found to exert an unfavorable action upon the patient

14 The considerable expense of purchase and the difficulties and dangers of administration of

radium therapy are more than justified by the results obtained  
ADOLPH HARTUN

Pancoast H A Malignant Disease of the Throat and Sinuses R view of Cases Treated by Radium and Roentgen Ray J Am M 1917 1: 980

In the treatment of inoperable malignant growths surgery doubtless has the widest adaptation of the many procedures now employed In most instances the lesion must be attacked by a combination of the several methods now at command While radium and the roentgen ray are by no means the only other suitable agents they probably have the widest field of application next to surgery When large surfaces must be exposed such as mammary carcinoma abdominal or pelvic tumors roentgen therapy is the choice between the two agents When growths originate in the cavities such as the mouth throat and ear deep coss fittingly the roentgen ray or possibly by radium is essential but the possibility of adding to the dosage and to the efficiency of the treatment by direct local applications of radium has a distinct advantage

When implanted directly into sarcomatous tissue radium generally causes little or no sloughing if the growth responds promptly It is advisable to produce as rapid subsidence of the growth as possible in order to minimize the possibility of metastasis during the period of treatment The author's experience has seemed to prove that growths insufficiently treated at the periphery may be stimulated to more rapid proliferation at this portion Sarcomatous growths especially in the tonsillar region are more amenable to treatment than carcinomata The author advises that treatment be continued for some time after the apparent complete disappearance of the growth

A number of cases are reported which are both interesting and instructive  
W A EVANS

Ingersoll J M Stereoscopic Roentgenogram of the Head T Am Laryngol 1917 1: 197

The longer stereoroentgenograms have been used the more certain has been the conviction of their practical value for they give definite information in regard to the nose and the nasal accessory sinuses the brain and many of its blood vessels the ear and the mastoid which cannot be obtained in any other way The size and boundaries of the maxillary and frontal sinuses can be distinctly seen If there are any septa tumors or foreign bodies in these cavities they can be accurately located and defined The ethmoidal and sphenoidal sinuses overlap each other and are thus somewhat masked but their position relative to each other and the orbit and the other surrounding structures can be clearly distinguished

Skill in interpreting the roentgenograms can be more easily acquired by the surgeon than by the

roentgenologist for the surgeon has the decided advantage of being able to verify and correct the findings in the roentgenogram while he is operating. If the surgeon will carefully study the stereoscopic pictures before operating, compare his interpretation of the picture with the condition which he finds in the operation, and then study the picture again after the operation, he will soon acquire great skill in interpreting the stereoscopic plates.

In studying stereoscopic plates they should be examined from both sides. First put the plates in the stereoscope with the film sides toward the mirrors. This will show the structures as they are seen in the operation with the external parts in the foreground and the deeper structures in the background. Then by reversing the plates in the stereoscope, turning the smooth sides of the plates toward the mirrors, the structures will be seen from the inside of the skull.

The technique for making stereoscopic anteroposterior radiographs through the frontal sinuses is described as also the technique for making stereoroentgenograms of both mastoids on a single pair of plates.

These plates when developed are placed in the stereoscope with the one having the right eye images in the right light box of the stereoscope, and the one having the left eye images in the left light box. With the glass side of the plates turned toward the mirrors of the stereoscope the mastoids are viewed from the inside of the skull while with the film side of the plates placed toward the mirrors the mastoids are viewed from the outside of the skull.

Weil E. A. Roentgenotherapy of Peripheral Tuberculous Adenopathy. *Am J Röntgenol* 1917 14 449

The author states that roentgen treatment is justified in all tubercular adenopathies whether inflammatory or suppurative. In the former it alone is sufficient to effect a cure, although additional forms of treatment may be added to combat the patient's tubercular diathesis and increase his power of resistance. The closed suppurative form should have the pus evacuated by fine aspirating needles as a preliminary to intensive treatment by the roentgen ray. If fistulae and cutaneous ulcerations are present surgical cleansing should precede the radiotherapy.

The technique employed consists of sending through a variable number of skin areas hard rays of 8 or 9 Benoist filtered through 4 mm of aluminum. Each area receives 10, 12 or even 14 H units divided in a number of consecutive doses. One or more series are given at variable intervals.

Roentgen treatment thus administered does not cause rapid growth of the ganglionic masses nor any spreading of the tuberculous condition as has been maintained by some authors. It has been successful even when administered under adverse conditions of environment. The author believes it to be the method of choice. A number of case

histories are included to demonstrate the efficiency of the treatment. ADOLPH HARTUNG

Donoghue F. D. Mesothorium and Combination Methods in the Treatment of Cancer. *Boston M & S J* 1917 cxxvii 365

By combination methods the author means surgery, chemotherapy as represented by borochole, with or without selenium in the colloidal state, and ray therapy either in the form of the roentgen ray, radium or mesothorium, together with the intravenous injections of thorium. The value of individual therapeutic agents in the treatment of cancer is briefly reviewed and the conclusion reached that the use of none of them alone will produce as good results as a properly considered combination of them. He cites numerous cases treated by various combinations of the above with the results obtained. Several cases of keratoses and epitheliomata treated only by mesothorium are also included.

The author arrives at the following conclusions:

All superficial ulcerations and all precancerous conditions yield readily to local ray therapy. Moderate doses should be used at the beginning, not exceeding 30 mgm. hours at one dose. If there is no response, choline injections are given intramuscularly as a preliminary to a second dosage. Large ray doses are indicated for deep cancers which should be made accessible to the surface so that there is a certain application of the rays to the malignant cells, and there should be means provided for the draining of decomposition products.

A desirable thing is to cause a disappearance of the cancer cells rapidly enough to overcome its growth and slowly enough to prevent too much cancer toxin from being set free into the system.

In all cases of carcinoma of the breast, the follow-up treatment by chemotherapy and ray therapy as represented by the X-ray is desirable.

There should be some properly correlated method of treatment under some device so that when a surgeon has done what he thinks best and recurrence which occurs in the greater majority of cases takes place, there should be some method known so that these patients are not exploited by charlatans to drift despairingly from one person to another because there is no authoritative voice to indicate a rational course for them to pursue.

The substances necessary for massive doses must be so handled that all the twenty-four hours activity may be utilized and that the tremendous loss that exists through wide distribution and limited ray use may be obviated.

Massive doses should be reserved for large growths where it is possible to have complete drainage. Growths on epithelial surfaces especially where there is free lymphatic anastomosis should be treated by chemotherapy, ray and excision with out extensive dissection.

Where there are metastases no treatment is other than palliative. Marked cachexia is also a contra-indication to operation. ADOLPH HARTUNG



## MILITARY SURGERY

Porter W T Further Observations on Shock at the Front *Brit Med J* 1917 1 36

Observations regarding the blood pressure of soldiers at the front under various conditions are given by the author who describes his experiences in a very vivid manner. His conclusions follow:

1 The blood pressure is not lowered under habitual bombardment. These observations were made at Neuport at the Mort Homme and on the Somme.

2 The blood pressure is not lowered under barrage fire of a violent nature.

3 Shock is probably not immediate but develops some time after receiving the wound.

4 Fat embolism is a cause of shock. Typical shock has been produced by the injection of oil into the jugular veins of animals. In more than a thousand freshly wounded cases aside from a few abdominal cases the only shock seen was in the cases of fractured femur or multiple wounds of the subcutaneous tissue in which fat embolism probably existed.

5 The low blood pressure of shock is increased from 15 to 30 mm. of mercury by increasing the aspiration of the thorax. The author cites cases to show the value of administering carbon dioxide in shock. Enough gas was used to double the respirations. Care should be exercised in gradually reducing the carbon dioxide respiration.

C A B O E

Maasall W H Shell Shock *J M I St M S* 97 396

The author divides shell shock into two groups: (1) the due to physical causes in the immediate vicinity of the soldier and (2) the cases of neurasthenic states due to physical and psychological stress and fatigue greatly resembling that in civil life is called nervous breakdown. The etiological factors may be violent explosion, very slight physical traumatic nervous gas, prolonged anxiety, cold, wet and hunger, scenes of horror, loss of comrades, etc. Seasoned soldiers while not immune do not seem to have as severe symptoms as recruits and recover much more rapidly.

About 10 per cent of all cases had had previous nervous breakdowns. Shell shock was rarely seen in the severely wounded. Many of the patients belonged to the lower mental category. The pathology is not definitely established. Unclotted hæmorrhages have been seen in the brain and increase of globulin and also blood cells have been found in the cerebrospinal fluid while the endocrine glands have come in for their share of the blame. The onset is usually sudden either in the trenches or immediately after return from them. A period of unconsciousness is very common often followed by a dazed semi-conscious condition. There is a characteristic facial expression of terror and a retrograde amnesia which improves gradually.

Patients complain of terrifying dreams at night or in the half waking state which leave them distressed and exhausted. General tremors, dizziness, defects of speech usually stammering, occasionally aphonia, temporary blindness with shaky vision thereafter hyperacusis and many other symptoms go to make up the clinical picture. There are almost invariably sensory disturbances, mental dullness and confusion. Officers often present anxiety, nervousness and are afraid of assuming responsibility. In making the diagnosis is making ring must be excluded.

A Wassermann should be taken to rule out active syphilitic brain disease. Recovery is tedious with tendency to relapses. The treatment includes rest, a diet, prolonged isolation, sleep by means of hypnotics and an endeavour to gain the patient's confidence. Iychnic contagion must be guarded against. Aphonic patients are often lightly anaesthetized and induced to talk with the purpose of keeping them talking until awake.

R B B TITMAN

Fitgerald J G and Robertson D E Report of an Outbreak of Diptheric Wound Infection Among Retired Soldiers *J Am M A* 97 17

For some months wound men of the Canadian expeditionary force on whom amputations of a permanent nature were necessary have been returned to Toronto for the orthopedic treatment. Such patients were under the care of the Military Hospitals Commission Command. During the first week in May 1917 as a result of a thorough examination of suppurating stump wounds on one or two cases were observed which strongly suggested diphtheric infection. Between May 20 and June 10 76 men with suppurating wounds chiefly amputation wounds were watched. Of this number 3 were found to be suffering from bacillus diphtheric infection. In addition to these wounded men who were so infected a nursing sister with a slight wound of one index finger was also discovered to be suffering from diphtheric infection of the finger.

It was extremely probable therefore that patients with diphtheric wound infection were being returned to Canada from overseas. Since a routine bacteriologic investigation of all cases of suppurating wound had not been made it was impossible to learn where as the original source of infection.

Since it has been observed that possibly 1 or 2 per cent of normal healthy persons are carriers of bacillus diphtheric it was a matter of interest that as a result of the bacteriologic examination of the nose and throat swabs of all the patients examined and of the contacts only two carriers were found. Six men who had most marked symptoms suggesting skin diphtheria improved greatly after antitoxin was given.

The treatment in all cases was practically the same. The men were isolated and given diph-

theria antitoxin and their dressings were done with a rigid regard for asepsis. It has also been recommended that in future a routine bacteriologic examination of all suppurating wounds be made also that in no case should dressings of infected wounds be undertaken without rubber gloves. It is regretted that because of the pressure of other work a Schick reaction could not have been done on all these cases.

EDWARD L. CORNELL

Layton T. B. Surgery Next Door to the Front  
*Lancet* Lond 1917 cxliii 488

Wallace sums up war surgery as being in a great degree a matter of when and where to operate and how best to move the wounded man to the place where he will win back to health.

No operations should be done in any mobile unit so long as the patient can be conveyed in a reasonable time to an immobile unit which has all the facilities of the modern operating theatre and of modern nursing. It has long been recognized that for the successful treatment of an abdominal wound the number of hours which have elapsed between the time that a man was hit and the time at which he arrives at the operating unit is inversely proportional to his chances of recovery. As the principles of wound treatment have developed it has become clear that rapidity should be aimed at in all cases and the ideal should be to get every case back to the casualty clearing station at the quickest moment. The actual number of hours is not the only factor to be considered as some cases suffer so severely from shock that to get them to the casualty clearing station in the shortest time would result in their arriving moribund and it is necessary in some cases to delay the journey several hours or to use some means of transport other than the most rapid if it is likely to lead to less jolting on the journey.

The subject then falls under two heads: first collection and evacuation to consider whether every wounded man can be brought to the casualty clearing station in the shortest possible time which in part of the line may be four hours or under and in another part twelve hours or over and if evacuation of all cases to the casualty clearing station with in this time is impossible to decide how to carry selected cases and which cases should be selected. Secondly prevention of shock and collapse to consider what can be done by the general principles of civil surgery by the application of special appliances for certain types of cases by selection of means of transportation for serious cases.

The time before a wounded man's arrival at the casualty clearing station is partly taken by his being carried from one post to another and partly by the time which he remains at such a post. It is clear then that any speeding up in the collection and evacuation of cases must either be done by faster transportation between these posts or by shorter periods during which they are kept at the various posts. The time that any form of trans-

port takes to move over a given road cannot vary much and it is possible that very rapid movement does more harm by causing increased shock than it benefits by conveying the patient more quickly. If any time is to be saved it must be done by shortening the periods during which the patient remains in the various stations. Part of this time is taken up by examining, dressing and feeding the patient but for the remainder he is in the ward resting until it is his turn to go on to the next station. If transports were ready so that every patient could be sent on the moment he was dressed and fed every case would arrive at the casualty clearing station in the minimal period of time. This is clearly impossible for cases coming into the advance dressing station in numbers would have to be dressed and fed simultaneously and if cases arrived one by one a fresh transport would have to be called out for every minor case resulting in a gross waste of transports. Also in many places collection from the advance dressing station to the main dressing station can only occur by night and it may be inadvisable to send certain cases at certain times of the day either because of the day's heat or the night's cold.

Since the ideal that every wounded man arrive at the casualty clearing station in the minimal time evidently cannot be attained all that can be done is to make the average time for all wounded cases as short as possible by efficient organization. Much can be done to send selected cases in the minimal time. Where early operation may save a life or limb there is warrant for taking greater risks by going over roads under observation of the enemy in daylight and by using a transport for a single case the extravagance being justified by reason of the urgency. This should be done in all cases where the abdomen has been opened and the man is fit to move also in all wounds of the bones and joints. Roads under observation over which traffic is not allowed by day should be open to field ambulance transports for selected cases and the transport should be at the right place at the right moment.

To have the transport ready at the right spot and at the right moment is not easy. It is very important to have good communication between the main dressing station and the advance dressing station and again between this and the regimental aid posts ahead. In this way the medical officers in charge of the stations can notify one another that a case is coming along and if a transport is not there to convey it one can be gotten. For this reason it would be well if the main dressing station and the advance dressing station had telephone connection. It is invaluable for getting patients to the casualty clearing station in the minimal time.

The prevention of shock and collapse resolves itself into keeping the patients warm. In some instances infusion is necessary but must never be done as a substitute for getting the patient warm but as an accessory to this. Hot water bottles in

large numbers are chiefly depended upon. Numerous blankets around the patient are the next factor also hoods, tucking, etc. Shock is enormously diminished by immobilization of injured limbs. No case of fracture of a long bone should pass the advanced dressing station without immobilization. Fracture of the femur should be put in a Thomas splint, a fracture of the leg in a back splint with foot piece and two side splints, a fracture of the forearm in an internal angular and a fractured humerus should be treated by binding the arm to the side or putting it in a Jones arm splint. All extensive wounds of muscles and of joints should be put in splints and every wound near a joint should be treated as though it involved the joint. A wound of the knee joint travels best in a Thomas splint.

Every wound involving the abdomen or chest should be conveyed in the semi sitting position with the knees bent. The degree of shock to which the patient will be subjected depends much upon the smoothness with which a transport moves. A motor ambulance carries the very poorest transport and a horse ambulance wagon little better, a litter or travois is best.

The cases are passed so quickly from one unit to another that they are never long under the medical care of one man until they arrive at the casualty clearing station increasing the difficulty of making a diagnosis and determining a line of treatment and affording the possibility that the line of treatment adopted by one medical officer may be changed by the next. It is generally worse to change treatment than to carry through to its conclusion on an inferior line of treatment. It is important to standardize lines of treatment and to insist that medical officers in the forward area begin these and that those on the lines of communication and at the base continue them.

An accurate diagnosis can seldom be made by a medical officer who sees a case for only a short time. Many wounds of the buttock ultimately prove to have penetrated the pelvic cavity so it is well to have every wound of the buttock other than superficial through and through injury, classed as an abdominal case.

Careful notes should be made on the back of the field medical card at each station regarding the wound dressings, pulse rate, administration of morphia, etc.

Indications for operations in the field ambulance are few. Abdominal cases which are too bad to be sent on to the casualty clearing station but in which operation gives some slight hope of recovery are rare. Cases needing immediate amputation are rare. Cases of bleeding from a single large vessel seldom find their way to the main dressing station as the patients are dead before arrival but when such cases do occur it may be necessary to ligate the vessel.

Cases of bleeding from more than one small vessel in a large muscular wound are not many when they

do occur it is probably best to excise the wound and insert tubes according to the Carrel treatment. The author has not seen a case of head injury in which operation in a field ambulance came within the bounds of discussion. V. C. Hurv.

Good in T. H. War Surgery, M. S. 18, 19, 21, 79.

Septicemia has proved to be a very serious and general complication of almost every class of wounds at the front. The cause is the extreme pollution of the soil in the fighting area due to the extensive manuring for cultivation. The badly destroyed and devitalized tissues furnish a most favorable nidus for the growth of any bacteria which may have gained entrance to the wound.

At the field ambulance and casualty dressing station the patient is first given an injection of antitetanic serum. The field dressing which usually has been put on too tightly should be taken off and as much dirt and blood as possible washed away. Hopelessly torn and damaged tissues should be removed. Where necessary the patients ought to be anesthetized, the wound enlarged and mechanically cleaned and counter drainage established. The wounds should not be sutured. Bleeding arteries should be exposed and ligated rather than an attempt made to check hemorrhage by tamponing the wound. Antiseptics have proved disappointing, adequate drainage and mechanical cleansing form the most essential steps.

Collapse and shock which result usually from hemorrhage or exposure to cold, wet, hunger, well as from injury to viscera or large bone or from long ambulance rides are best treated by rest, warmth, hot drinks or if contraindicated, hot saline per rectum. Gangrene usually occurs within three days. The temperature is subnormal. Treatment consists of free incision, removal of dead tissues, thorough cleansing of the wound, removal of foreign bodies, hydrogen peroxide irrigation and establishing efficient drainage.

Fracture wounds should be explored under anesthetic and treated as any other wound, foreign bodies and completely detached bone fragments should be removed, free drainage provided for and the limb immobilized. At the casualty dressing station humerus fractures are best treated by application of short wooden splints and by bandaging the arm to the side while femur fractures are usually held by Thomas knee splints or Page splints. At the base more complicated methods can be used for the purpose of getting and maintaining correct apposition but plates and screws etc. should be avoided.

Knee joint wounds are more serious in consequence than those of any other joint. For the more serious cases the joint should be freely opened and drained and continuous irrigation used. Wounds of the head require expedient operation for the sake of cleanliness. Otherwise operations on the head are less frequently necessary than has been be-

lived In injuries to the spinal cord it is interesting to note that an indirect injury producing a concussion may give symptoms very similar to those following direct trauma Penetrating wounds of the chest if not immediately fatal have a good prognosis Absolute rest free use of morphia if necessary is essential Hæmothorax should not be tapped within the first week because of the danger of producing another hæmorrhage Infection of hæmothorax is common

The majority of cases of gunshot wounds of the abdomen die on the field Primary operation for intestinal wounds is indicated if the patient is seen within the first 24 hours and is in good condition Wounds of the kidney seldom require operation unless there is continuous bleeding Trench foot or frost bite is due to prolonged exposure to a low temperature especially associated with wetting, and a lowered general condition Prophylaxis is infinitely more important than any treatment Loose boots thoroughly greased change of socks dryness if possible and exercise will aid greatly in warding off frost bite The trench foot washing stations have done much to reduce the incidence of this affliction The gas mask is a good protection against gas attacks The treatment of gas cases consists chiefly in absolute rest and oxygen expectorants and venous section in the badly cyanosed R B BETTMAN

**Speed R. Prompt Removal of Foreign Bodies in Gunshot Wounds Arguments in Favor of**  
*J Am M Ass 1917 lxi 1079*

With the equipment now at hand it seems best to remove foreign bodies remaining in the tissues after gunshot as soon as conservatively possible It is commonly known that some small foreign bodies will remain in well vascularized tissues become encapsulated and cause no harm On the other hand without reliable statistics it is probable that a large proportion of gunshot wounds suppurate and indicate removal of the foreign body for that reason or for pain or functional interference

Suppuration drainage convalescence late secondary operations after return to service with all the handling and expense incident thereto are a drag on resources Could not an appreciable portion of this outlay be curtailed by prompt removal of foreign bodies? Because wounded men are conveyed to casualty clearing stations it is there that foreign bodies should be removed with restrictions so that the wounded may then within a few hours for the most part be on the first step to recovery If suppuration follows its course is shorter since the foreign body is removed There is far less likelihood of gas or other infection Time dressings the number of medical corps assistants transportation expense and home hospitals are curtailed and a larger proportion of wounded men can be retained near the active field forces and sent back without home travel There are

various complications which might be partly obviated such as long draining secondary sinuses from tissues with foreign bodies lying within secondary hæmorrhages and the psychologic effect on men who retain in their bodies these pieces of metal Loss of blood shock and anatomic inaccessibility prevent the treatment of some gunshot wounds by this method  
EDWARD L CORNELL

**Aubourg and Barret The Function and Use of the Various Types of Radiologic Installations in the Army (Rôle et utilisation des divers types d'installations radiologiques aux armées)**  
*J de radiol Par 1917 ii 548*

The experience of the authors confirms the opinion that in war surgery radioscapy can and should replace radiography The fact which dominates the radiologic service in war is the necessity of examining all the wounded by radioscapy radiography is and must be exceptional Such examinations as seeking and locating a projectile and those of a thoracic nature etc are all radioscopic

There is a difference however in the treatment of fractures If radioscapy is sufficient for the diagnosis of a fracture it can be safely asserted that radioscapy is insufficient for its treatment Radiography is then necessary not ordinary but perfect radiography which shall give the maximum of structural details stereoscopic if necessary to judge of the site of fragments and projectile sequestræ etc The tendency to concentrate in one center for each army the wounded with important bone lesions convinces the authors that in such a central hospital there should be not a radioscopic but a perfect radiographic installation such as would give to surgeons specializing in these lesions the maximum indications for treatment since the preservation of a limb is often involved This applies not alone to cases of fracture but also to bony lesions of the face head etc where radiologic examinations are necessary to establish the prognosis  
W A BRENNAN

**Small C P Equilibrium Tests for Aviation Recruits**  
*J Am M Ass 1917 lxi 1078*

Because of the unusual conditions confronted by the aviator the physical examination of candidates for this branch of the government service is more rigid than for any other branch Among the most important tests are those for determining the sense of equilibrium The Barany rotating chair or the Jones modification of the chair is used

Three tests are made the nystagmus the pointing and the falling The technique of each test is given |  
EDWARD L CORNELL

**Acker R B Observations by a Junior Surgeon of the John B Murphy Hospital Unit with the British Expeditionary Forces in France**  
*Mil Surg 1917 cli 295*

Acker states that the British Medical Corps organization may at present be considered the

most perfect of its kind. There is an effort made toward more uniform surgical treatment and grouping of wounded in special hospitals under specially qualified men to handle those cases. The proper care of gunshot fractures is of great importance such cases have suffered a great deal from personal hobbies of surgeons at the various medical stations between the firing line and the base hospital the splint being changed and the fracture manipulated many times. If the ideal treatment which place a permanent splint at the firing line and sends the patient directly to a fracture hospital is impossible the next best thing to do is to place the fracture in temporary immobilization and transport the patient directly to a fracture hospital to remain until recovered. There are a number of special fracture hospitals in France and England but many gunshot fractures still go through the relay of hospitals with the changes of splints.

Drainage is the first essential in the treatment of wounds. It is best to remove fragments of metal as soon as possible. Accurate localization of shell fragments or bullets should be accomplished with the aid of X-ray plates. In especially trying cases the use of the fluoroscope is of value. Soft rubber tubing is favored for drains. Hot bone dressings frequently changed with thorough drainage are of considerable value in suppurative wounds. After suppuration subsides and healthy granulations appear the wound is wholly or partly closed by sutures.

The Dakin solution has considerable merit especially if it is begun shortly after the infliction of the wound before suppuration is well established the suppurative process may be shortened and the wound sutured much earlier. It appears that where the suppuration is well started this treatment has very little influence on the course of healing. In wound with a foul smelling discharge it is very efficacious as a deodorant. Prolonged use in wounds of this type seems to delay healing. It cannot be used as a hot dressing but must be freshly prepared and kept from the light in well corked bottles. After thorough drainage of the wound the solution is most efficacious if instilled into the drainage tubes at frequent intervals. Irrigation with any solution except in a limited number of special cases is not practiced.

Continuous irrigation of wounds has many drawbacks. The treatment of wounds with hypertonic salt solution or packing with saline tablets as recommended by Wright was much in vogue for a time but was found to produce dehydration of the tissues and retard healing.

In head injuries conservative treatment is advised. Spinal puncture is often of value in relieving symptoms of pressure and is a helpful aid in diagnosis. If operation is indicated great care should be taken with the dura which should only be opened when absolutely necessary. In wounds of the face and jaw the dentist is of great assistance in applying

splints using the teeth as an anchorage. Resulting deformities can be much improved by the use of autogenous bone transplants and plastic skin flaps.

Patients with chest wounds bear sepsis for prolonged periods with good results. In one series of 100 cases there was 15 per cent mortality. They are all treated expectantly and made comfortable in bed with a back rest. Danger of infection is much greater in shell and bomb wounds than in bullet wounds.

Relatively few abdominal injuries reach the base hospital they are usually kept in the field ambulances and clearing hospitals. Many of them have been exposed to the weather for hours after injury and have been transported in a jolting ambulance. Shock is present and must be combated before operation is attempted. Results in both operative and non-operative cases are disappointing. Rifle bullet wounds of liver and kidneys without continued hemorrhage do exceedingly well without operation so do bullet perforations of the stomach provided the latter was not distended with food at the time of injury. Approximately 60 per cent of wounds of the colon recover without operation.

Shell wound of the abdomen are invariably accompanied by infection and are very fatal. Gunshot fractures of the long bones are most difficult to treat there is usually marked comminution and in some cases complete loss of sections of bone. Cleansing and drainage are of first importance. Immobilization is secondary. If much destruction of the limb is present or if there is a beginning gangrene amputation is indicated.

Arm wounds as a rule do better than corresponding wounds in the leg. In wounded joints the limb should be fixed in best adaptation for use if ankylosis is to result. Infected wounds of joints should be freely opened and where there is much destruction of the bones amputation is required.

Operations on wounds of the spinal column are not justifiable except when the X-ray shows a foregn body pressing on the cord. Spinal injuries result badly. Secondary hemorrhages from wounds are quite troublesome and require packing in cases of hemorrhage from small vessels and ligation of large vessels.

Tetanus is relatively infrequent since the introduction of the antitoxin prophylaxis. The prophylactic dose is usually from 500 to 750 units given as early as possible. Most of the cases of tetanus were of severe type and in spite of the prophylaxis as well as vigorous treatment proved fatal.

In cases of gas gangrene if the infection is local in the form of emphysematous cellulitis prompt efficient opening of the wound to the air is the proper treatment when the gangrene spreads amputation is the only choice.

In nerve injuries no repair of the nerves should be attempted until the wounds are entirely healed.

As regard anesthetics ether was the one of choice. Local anesthesia was useful especially

in suturing small wounds. Gas was used only in very short operations. Spinal anesthesia was very useful in cases of poor general condition requiring amputation. L R GOLDSMITH

Cumston C G A Surgical Post on the Firing Line N Y M J 1917 cvi 604

After some months of war it became evident that early operations gave the best results and for this reason advanced surgical posts have been established along the firing line.

The subterranean post described by the author was located only 300 metres behind the first French trench on the slope of a hill. It consisted of one shelter nine by three metres constructed with metal and divided into a receiving room, sterilizing room and operating room; a second bomb proof shelter measuring ten by two metres for a ward; and a third one for the personnel. It is highly important that the wounded men should have a feeling of security in order to obtain rest during convalescence.

The operating room was constructed so that as complete asepsis as possible could be carried out. The ground was cemented, the walls of brick were covered with a thin layer of cement and the entire interior was coated with a layer of washable white material. The operating table was the regulation metal one used in the French ambulances. The room was furnished with hot and cold water. Three acetylene lamps gave excellent lighting.

The operating room communicated with the bomb proof ward by a short corridor. Each bed was a stretcher covered with a mattress, sheets and blankets. The beds were placed one above the other as in Pullman sleeping cars. A heating apparatus warmed the room. Two wells 100 metres deep gave plentiful water supply. The personnel included four surgeons and ten male nurses.

This surgical post was one of the first to be established and was an experiment. It was in activity for three weeks during which period 127 wounded were received and 71 major operations were done. Out of the 71 operations there were 19 deaths. The operations were mainly injuries to the limbs, cranium and abdomen. Of the latter there were twelve laparotomies with a mortality of 66 per cent. Light laparotomies were done for intestinal wounds with seven deaths, two for wounds of the liver with one death and one for resection of the omentum with recovery. This is a

good showing when the serious nature of the wounds is considered.

At the end of three weeks the French had advanced two and a half miles beyond the advanced surgical post so that it no longer fulfilled its purpose and was abandoned. A H HIXSON

## HOSPITAL MEDICOLEGAL AND MEDICAL EDUCATION

Patterson F D The Relation of the Physician to Some of the Problems of Modern Industry Penn M J 1917 xv 832

Industrial corporations and business organizations have increased their efficiency and capacity for output at a terrible toll of human life and suffering.

Statistics for 1916 in Pennsylvania record 251,488 accidents and 2,587 fatalities. Metal products works, railroads and other public service branches, mines and quarries prove most hazardous occupations.

Causes of industrial accidents include (1) unguarded dangerous machinery, (2) ignorance of employees as to dangerous conditions, (3) unsafe methods of work, (4) recklessness, (5) speeding up and (6) fatigue.

Prevention of accidents can be furthered by the following means:

1. An awakening of public conscience and a development of human responsibility.

2. Safety devices handled by safety men who have acquired the safety habit. The prevention spirit is as important as the safety device.

3. The education of new employees to dangers in their particular work and training in safe methods.

4. Physical examination of applicants for employment and annual re-examination of all employees classifying them according to physical qualifications.

5. Preventive medicine with special regard to those engaged in dangerous trades.

6. The collection of all dusts and fumes at their points of origin.

7. Employment of a competent doctor in every industry.

8. A change in curriculum of all medical colleges to fully meet the requirements of industrial medicine.

H J VAN DEN BERG

# GYNECOLOGY

## UTERUS

Anderson R R Syncytioma Magnum Rele of Literature and Report of a Personal Case of Unusual Interest. *N. Y. J. Med.* 1907, 7, 259

Anderson reports the following case

The patient aged 22 had one child at full term 10 years before the present trouble. In September 1909 following an attack of pleurisy which lasted three weeks the patient had an abortion at about six weeks. She was put to bed for ten or twelve days. Six weeks later she had a severe hæmorrhage after which she was corrected and several fragments of spongy placenta removed. About a month later noth hæmorrhage occurred so severe that it was necessary to pack in order to control it. Another uterine treatment followed and an examination of the uterus was made to determine the cause of the hæmorrhage only a few small shreds were found and removed. No microscopic examinations were made.

Hæmorrhages occurred in November and December 1909. There was more or less uterine hæmorrhage until May 1909 although the patient was not confined to the bed.

Nineteen months following the onset of the trouble the uterus was about three times the normal size the left side being larger than the right. At abdominal operation a soft spongy growth was found involving the left half of the fundus of the uterus which was adherent to the sigmoid. The left tube and ovary and nearly one half of the fundus containing the soft spongy growth were removed. Sections of the growth were made and found to be a malignant syncytioma.

In October 1911 another hæmorrhage from the uterus occurred. A tumor like mass about the size of a hen's egg was found in the fundus of the uterus at the site of the former growth. This projected somewhat into the uterus and was not pedunculated but was oval in shape soft and easily torn. It was so firmly attached to the uterus that it had to be removed with scissors. Following the removal of this mass the uterus was packed and the patient put to bed where she remained for eight weeks. Microscopic examination of this mass showed it to be an organized blood clot.

March 19 1915 the patient gave birth to a ten pound infant normal in every respect.

EDWARD L. CORLI

Calderini G. Sarcoma of the Corpus Uteri (Unusual Case of Sarcoma of the Corpus Uteri). *Ann. Ostet. Gynec. Ital.* 1906, 5, 55

Calderini refers to the literature of sarcoma of the body of the uterus and reports a personal case in a

woman of 65 years. A spheroidal mass could be felt in the pouch of Douglas but it was doubtful whether this was a uterine tumor or a retroverted uterus. No definite diagnosis could be made. A median laparotomy was done. The omentum and transverse colon were adherent to the tumor which apparently was the uterus and was easily excised by hysterectomy. The woman died three days later from bronchopneumonia.

A complete anatomical and microscopical study of the tumor was made. It consisted of the uterus with the tubes and ovaries. The fundus and posterior face of the uterus were only lightly modified. The anterior face showed nodules and a large patch of about 5 cm diameter deprived of peritoneum with a very irregular surface and evidently constituted of neoplastic tissue very friable in consistency. It was here that the neoplastic tissue was united to the intestinal loops from which it was detached during operation.

The macroscopical examination of sections showed the neoplasm to be small round cell sarcomatous tissue.

Statistics show that one of every 37 uterine cancers is a sarcoma. W. A. BRENNAN

Davis A B. The Control of Uterine Hæmorrhage. *Bull. Lyngby Hosp.* 1911, 9, 7, 58

Davis states that while uterine hæmorrhage may occur at any time from birth to the end of life it is most frequent during the childbearing period of a woman's life. This flow has a wide range as to cause, amount, duration and severity. Bleeding from the vagina occasionally occurs in the hæmophilic infant during the first four days of life. It is usually accompanied by bleeding in other parts of the body and local treatment is of little value.

From 1890 to 1909 the case occurred in the Lyngby Hospital 18 such cases and later during a period of one year 12 of these cases appeared. By transfusion of twenty to thirty ccm of fresh human blood serum three times every twenty-four hours these infants were saved.

In certain individuals anæmia and a depleted physical condition may cause excessive and frequent loss of blood. The treatment in these cases is regulation of the mode of life, adjusted diet and tonic treatment.

In discussing hæmorrhage during pregnancy, labor and the puerperium the author doubts that he has ever met with a true case of menstruation during pregnancy. There is however occasional unmistakable evidence that the capacity of the uterine cavity is not fully occupied by the contained ovum in the early months of pregnancy and it is therefore conceivable that a flow of blood may

appear coincident with the periodical congestion of menstruation without causing decidual detachment. At such times pregnant women should avoid nervous and physical exertion. The greater number of hæmorrhages occurring during pregnancy have their origin at the site of some degree of detachment of the placenta. During labor this may continue an active cause. After delivery hæmorrhage can come from but two sources: the placental site or laceration.

The treatment of threatened abortion consists in the application of a light ice bag over the lower part of the abdomen and the use of some form of opium. In the treatment of hæmorrhage in connection with inevitable and incomplete abortion the indications are the same. In the early months packing the cervix and vagina will control the hæmorrhage. Within twenty-four hours after packing the uterus should be curetted with a dull instrument swabbed with half strength tincture of iodine and packed with five per cent iodoform gauze. The gauze is removed within twenty-four hours. During the fourth and fifth months better results may be secured by emptying the uterus in two sittings, packing with gauze for twenty-four hours and then removing the placenta and fœtus.

In the treatment of placenta prævia it should be remembered that all patients are better risks if treated in a hospital. The number of methods advocated seems to indicate a lack of reliability. In the writer's opinion cesarean section is the method of choice and should be given first place in cases of placenta prævia in primiparæ when the cervix is dense and undilated and there is severe hæmorrhage. He has performed 348 abdominal cesarean sections, 1 of which were for placenta prævia. In cases where the hæmorrhage is profuse after the delivery of the placenta the uterus and vagina should be firmly packed, pituitrin injected and the fundus held until it shows no tendency to considerable relaxation. Transfusion of carefully tested blood has saved a number of cases.

In accidental hæmorrhage occurring late in pregnancy the indication is immediate cesarean section. Postpartum hæmorrhage may come from the placental site from lacerations of the cervix or uterus or from all of these. If the hæmorrhage is profuse the indications are for immediate removal of the placenta either by expression or by manual separation with the hand inside the uterus. Ergot or pituitrin in these cases will aid retraction or contraction of the uterine muscles. Pituitrin acts more quickly and forcibly than ergot through its action is not long sustained. Without waiting for the action of these drugs every other method should be brought into use: i.e. massage of the fundus, forced ante flexion of the uterus against the symphysis, compression of the fundus with one hand externally against the other hand in the uterus, hot intra uterine douche (118 to 120 °F.) of normal salt solution, bichloride of mercury (1-10 000) tincture of iodine or acetic acid two quarts to

four quarts of hot water. In case the douche is not quickly at hand a pad of cotton gauze saturated with acetic acid and applied freely all over the interior of the uterus has proved successful many times.

Hæmorrhage due to laceration of the cervix cannot be controlled by packing. If large arteries have been torn packing is a dangerous procedure. Hæmorrhage from laceration of the perineum or vagina may be profuse enough to be dangerous but being accessible should be controlled by ligatures and sutures which repair the lacerations.

There is a form of postpartum hæmorrhage which appears in a few cases at about the tenth or twelfth day; this should be treated by rest in bed, an ice bag over the lower abdomen and one ccm of pituitrin three times a day. Late postpartum hæmorrhage occurring two or three weeks after delivery should be treated after the same plan advised for incomplete abortion.

Ayres D. R. Some Observations on the After Results of the Interposition Operation. *Am J Obst N Y* 1917 LVII 451

The after results of 37 interposition operations are reported. Of these 21 presented some ill effects. Nine cases of cystitis occurred due to colon bacillus and staphylococcus infections. Anatomical conditions probably contributed largely to the condition as the floor of the bladder was much distorted by the uterus, the trigone pushed up and large pockets formed on either side of the trigone.

Incontinence, prolapsus of the fundus, dragging down the floor of the bladder, return of the prolapsus and dyspareunia were other undesirable sequelæ.

Anatomically the results were much more favorable as 30 out of the 37 could be said to have perfect cure of rectocele, cystocele and prolapse.

Contra indications for the operation are the child bearing age, prolapse of the third degree and fibroids causing hæmorrhage. It is indicated in the lesser degrees of prolapse with cystocele. In these cases large uteri should be reduced in size and an effort made to keep the floor of the bladder level. In cases of incontinence the sphincter of the bladder should be strengthened. Cystoscopic examination and careful urinalysis should be done before and after operation. W. L. BROWN

#### ADNEXAL AND PERIUTERINE CONDITIONS

Gomez R. S. Chronic Appendicitis and Sclerotic Ovaritis (Appendicitis crónica y ovaritis esclerótica). *Rev argent de obst y ginec* Buenos Aires 1917 I 157

In Gomez' opinion chronic appendicitis in women is usually accompanied by cystic degeneration of the ovaries. The symptomatology due to the ovaritis is much the same as the symptomatology of chronic appendicitis. Operation should be aimed toward the appendix and the ovaries distinguishing the two



different conditions involved in the ovaritis. If the cysts are small and numerous, puncture should be practiced. If the cysts are large and numerous or there are hemato-cysts or degeneration of the corpora lutea, cone form resection of from one third to two thirds of the gland according to the case should be done. Uterine lesions if concurrent should be remedied.

If the lesion is bilateral or seated in the left ovary or if there are uterine lesions to be remedied, median laparotomy should be done.

The foregoing is the method followed in the author's clinic when a chronic appendicitis is operated upon and the condition of the ovaries is previously determined so that it is known whether the right or left is to be attacked. It is the outcome of the failure to obtain improvement in many cases of chronic appendicitis previously operated upon without taking into account the condition of the ovaries.

W A BRENNAN

## EXTERNAL GENITALIA

Loumeau. Vesicovaginal Fistula and Calculous Cystitis. (Fst l'és c agin le et ytte al cule.) *Ga h b d d sc méd B de u* 97 xx viii 6

Loumeau refers to a case in which a woman was attacked by an intense calculous cystitis which complicated an old vesicovaginal fistula which had resulted after her first labor twenty three years before. Until recently the only symptom of importance had been a painless incontinence of urine, evacuation always being effected through the vagina and not through the urethra. After an incision in the vaginal wall beneath the fistula the calculus was extracted but attempts made to treat the fistula were without success and the urinary incontinence persisted. The author thinks the case interesting from the pathological point of view because vaginal fistulization of the bladder though usually efficacious against vesical infection has not in this case prevented the production of a very

intense calculous cystitis twenty three years after the production of the fistula. W A BRENNAN

## MISCELLANEOUS

Gentili. A Spontaneous Closure of Ureteral Fistula Consecutive to Gynecological Interventions. (S lla gua gi ne sp nta e delle fistole u ete ali o secuti ad te venti g ne lora i) *Ann d st g n* 197 xxi.

The idea that ureteral fistulae consecutive to gynecological operation frequently recover spontaneously has resulted from the fact that several of these cases have been reported. Stamen in 1905 made a critical examination of such reported cases and concluded that in a large number of them it was a fistula of the Malpighi Gartner conduit. Before pronouncing positively the existence of an ureteral fistula he thinks it is necessary to examine the case carefully under all aspects.

In a case reported in a woman of 32 years the author performed subtotal hysteromyectomy and bilateral adnexectomy by the abdominal route for uterine fibroma largely intraligamentous with parovarian cysts developed in the thickness of the right broad ligament and a left peri ovarian salpingitis. The postoperative course was regular until the fifteenth day when there was a rise in temperature due to a seropurulent collection in the left half of the pelvis and the discharge of a thin fluid through the vagina. By the twenty fifth day the discharge had lost the character of a thin pus and assumed that of an urinous fluid. The diversity between the fluids suggested a fistula of the Malpighi Gartner canal but the diagnosis was abandoned after ureteral catheterization. This showed it to be a left ureteral fistula which had opened a passage through the wound of the fornix. While considering the question of a new intervention after nearly two months of urinary loss there were clinical signs of a tendency to a spontaneous closure of the fistula. It cured without intervention within another month.

W A BRENNAN

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Orfila I P** Protracted Ectopic Pregnancy with Putrefaction of the Fetus Retained in the Abdomen (Gestacion ectopica prolongada con putrefaccion del huevo retenido en el abdomen mas de 9 meses) *Rev argent de obst y ginec* Buenos Aires 1917 1 217

The case reported by Orfila occurred in a negress aged 25 years with five previous normal labors. She became pregnant about the end of August 1915 and her labor was due in May 1916. Labor did not occur at this time but toward the end of June she was seized with violent pain and confined to bed. Her condition was then diagnosed as peritonitis. Later in July serosanguineous fluid escaped *per vaginam*. The woman was not seen by the author until March 1917. She then gave the impression of a patient with tuberculous peritonitis with abundant ascites. A small fissure was observed in the umbilical prominence which gave issue to a seropurulent fluid. This was dilated and three liters of dark seropurulent fluid withdrawn. The symptoms persisted viz a voluminous abdominal tumor amenorrhoea of 6 months a serosanguinary secretion and fever these raised difficulties of diagnosis between bilateral ovarian tumor with a twisted pedicle and infection or a pregnancy coexisting with an infected ovarian cyst. The author finally diagnosed with reservation an ectopic pregnancy at term with infection of the fetus.

Infra umbilical median laparotomy was done April 1917. On opening the abdomen and incising the muscular tissues the fetus fully developed and in an advanced state of putrefaction was found and extracted. The cord was adherent to the fetal head. The placenta was globular and adherent to the left iliac fossa and was retracted upon itself. To prevent hemorrhage the aorta was compressed and the placenta then freed. Hemorrhage was slight. The uterus was found about normal in size and showing no signs of rupture. To the right of the uterus a conglomerate mass with thick adhesions was found consisting of the apparently normal right tube and ovary. The circumstances therefore pointed to a left tubal or left tubo abdominal pregnancy. A posterior colpotomy was done and a liter of serum administered per rectum and abdominovaginal drains inserted. Suppuration ceased after three weeks.

Five weeks after operation the patient was in excellent condition. Examination on leaving the hospital showed the uterus in anteflexion normal in size and consistency but with a slight limitation in its movements.

The fetus was feminine and weighed 2180 grams. The placenta weighed 800 grams. The length of

the fetus 54 cm. the weight of the placenta the condition of ossification of the inferior epiphyses of the femur and the abundance of hair developed led the author to believe that it was a fetus of more than 9 months and that this was a case of prolonged ectopic gestation. The history brings him to the conclusion that the fetus lived 10 months in the abdominal cavity and that it remained dead in the cavity 9½ months. W A BRENNAN

**Ladinski L J** Ectopic Gestation Diagnosis and Treatment *J Am M Ass* 1917 lxi 633

The author calls attention to the signs and symptoms of ectopic gestation and remarks that the diagnosis is usually quite easy to make but not infrequently a positive diagnosis is impossible. A correct history together with the exclusion of intra uterine pregnancy calls for a positive diagnosis. The author lays down this simple rule. Think of ectopic gestation in every patient who has had an amenorrhoea followed by irregular bleeding and pain on one side. Diagnosis after rupture has taken place is very much easier than before this accident has occurred.

In the author's experience the following conditions have simulated ruptured ectopic gestation so closely that a wrong diagnosis was made.

1 Spontaneous amputation of a twisted pedicle of an ovarian cyst

2 Torsion of the tube with cyst of fimbriated extremity

3 Perforation of graafian follicle

4 Rupture of corpus luteum cyst

In the author's opinion the only rational treatment for ectopic gestation unruptured or ruptured is immediate operation. In his series of 280 cases there were 4 deaths 3 of which could be directly attributed to delay in operation. Hemorrhage from a ruptured tube should be treated just as hemorrhage from any other source regardless of the severity of the shock. The tendency to secondary shock becomes more marked as the interval between rupture and operation is prolonged.

The abdominal route is invariably employed. Speed is essential though one should not sacrifice careful surgery for the sake of speed. Blood clots should be wiped out with moist sponges before closing the abdomen. Drainage is unnecessary. In cases of extreme shock saline infusion should be given simultaneously with the opening of the abdomen. H B MATTHEWS

**Snyder J W** Eclampsia and Lumbar Puncture *J Am M Ass* 1917 lxi 1074

Snyder reports a case of lumbar puncture for the relief of convulsions in eclampsia. The woman

aged 25 a primipara had had seventeen convulsions in about twenty seven hours and in spite of a rapid delivery and the usual treatment for eclampsia the patient progressively grew worse. The breathing became shallow and irregular with considerable edema of the lungs. The face was cyanotic. Temperature was 106° respiration 34 pulse 140 and weak and irregular.

As a last resort the author made a lumbar puncture and drew off 40 cc. of clear spinal fluid. There was little if any increase in intra spinal pressure as the fluid escaped very slowly. The condition of the patient immediately improved. Consciousness was restored within a few hours. The temperature reached normal on the third day. Administration of sodium bicarbonate and glucose by the rectum were continued for several days. Convalescence was untroubled and the patient left the hospital on the thirteenth day postpartum in good condition except for some necrosis at the site of puncture.

The author strongly recommends this procedure for the control of convulsions occurring in eclampsia.

H. B. MATTHEWS

#### Young J. R. Abdominal Cesarean Section Indications. Technique. Case Reports. 1917. S. M. M. 97: 44.

Young discusses the operation of cesarean section under the following headings: (1) the scope of the operation according to recent opinion; (2) results which follow more extensive use of the operation; (3) the technique of operation from a surgical standpoint; (4) brief case reports.

The author's experience is limited to 11 personal cases and 80 cases collected from 12 operators throughout South Carolina. The fetal mortality was 23 per cent, maternal mortality 16 per cent. Excluding those who were dead before operating or were premature the fetal mortality was 27 per cent.

The author's conclusions are as follows:

1. Abdominal cesarean section has an established place in surgical obstetrics. Where absolutely indicated it should be done early and without a test of labor.

The success of the operation will vary inversely with the chance of previous infection.

2. Eclampsia *per se* is not an indication for cesarean section but any obstetric condition which renders rapid and safe delivery hazardous is an indication for section in eclampsia. If section is to be performed it should be done early.

3. Placenta previa and premature separation of a normally implanted placenta do not demand cesarean section provided the soft parts are prepared for safe delivery.

4. Finally, any obstetric condition which may arise should be an indication for cesarean section if it appears that such an operation offers the best chance for life to both mother and child.

H. B. MATTHEWS

#### Tuesdell E. D. Cesarean Section for Congenital Prolapsed Portion of the Vagina. B. L. L. 97: 199.

Bony deformity is a much more common indication for delivery through the abdominal wall than deformity of the soft parts. For this reason the features of the case here presented are of interest.

The patient, aged 19 at the end of her first pregnancy, revealed an abnormality of the vagina and was sent to the Lymington Hospital. Labor had been in progress ten hours. On admission the vagina was found to be small, conical and without evidence of internal orifice. Its direct opening was behind the symphysis and the child's head in the hollow of the sacrum. On doing an abdominal cesarean section no suggestion of an internal os could be found. The operation and convalescence were uneventful.

Repeated thorough vaginal examinations during the next six months showed the vagina to be a blind pouch or pocket two and one-half inches deep lined by normal looking mucosa. The external urinary meatus was of keyhole shape; the anterior portion resembling the normal urinary meatus, the posterior presenting a crescentic lip or margin resembling in contour half of a rudimentary external os uteri. A catheter introduced into the orifice seemed to enter the bladder and with drew clear urine. The posterior or cervical portion was practically situated within the ostium vaginae while a finger passed upward into the vagina behind this could feel a slender rounded structure suggesting a long and slender cervix uteri.

Examination during the menstrual flow showed the blood oozing from a minute hole too small to admit the point of an ordinary probe situated in the middle of the anterior vaginal wall. A catheter passed at this time over the cervix like lip penetrated into the bladder and withdrew clear urine.

The patient's menses had begun at fourteen years. She had evidently been no hematometra and no other menstrual abnormality. There was no history of injury such as might have resulted in scar tissue deformity.

C. D. HOLME

#### Rosenblum M. Case of Placenta Praevia in Twin Pregnancy. B. L. L. 97: 197.

The patient, aged 37, multipara, came to the hospital with the diagnosis of placenta praevia, though her former labors had been normal. Of the longer history obtained the only prominent feature was the hemorrhage which had occurred with the onset of labor several hours earlier. On examination she was found somewhat anæmic with heart and lungs negative. Abdominal examination showed a fundus four fingers below the ensiform. Vaginal examination under the usual precautions showed a marginal placenta praevia but in spite of the utmost care the resulting hemorrhage was so severe that the hand was kept in the vagina and cervical area tamponed.

while the patient was being transferred to the delivery room. Here hasty version and rapid delivery were made with the birth of a child weighing three thousand grams. The placenta followed immediately with considerable bleeding. The second child born by a version and a breech extraction weighed two thousand four hundred and eighty grams. The placenta too was easily extracted but with profuse hemorrhage. The uterine cavity was packed with iodoform gauze and the patient returned to the ward in good condition. Her convalescence was normal, temperature never higher than 99.4 and he was discharged on the twelfth day with her two babies in good condition.

C D HOLMES

**Plass E D Placental Transmission Total Creatinine in Plasma Whole Blood and Corpuscles of Mother and Fetus** *Bull Johns Hopkins Hosp* 1917 xxvii 297

In a recent study of the placental transmission of creatinine and creatine the author found that the maternal and foetal plasmas or sera have the same concentrations as these two substances but that the whole blood shows the same definite relationship only in the preformed creatinine whereas the total creatinine and subtracted creatine values are higher in the foetal blood.

Acting upon the suggestion that the values obtained for total creatinine in whole blood by Folin's method were probably too high Plass made subsequent observations which indicated that this criticism was valid and by the use of the acetic acid precipitation method lately suggested he obtained consistently lower results. The higher values found when the Folin procedure was employed are probably explained by the presence in the blood of some substance not creatine which when heated with picric acid produced a compound which gave a color development on alkalization similar to that produced by creatinine.

In continuing the previous work the author made a number of determinations of total creatinine on plasmas and whole blood by means of the new procedure. The preformed creatinine was not determined because the previous analyses had indicated that if the blood was unhemolyzed the two samples gave approximately the same results. In view of the reported lower creatine content of foetal tissues it seemed probable to the author that the blood-cells would show a comparable difference but such he states was not the case.

From his study in which previous work on the total creatinine content of maternal and foetal plasma and whole blood was repeated a different analytical procedure being employed the author concluded that there was no definite relationship existing between the maternal and foetal whole blood in a given case but the plasma values in both series of his experiments agreed closely in indicating to him a direct diffusion of the creatinine bodies through the placenta.

In the parturient woman and in the new born child there was usually an increased ability of the red blood cells to store creatine. In spite of the reported lower creatine content of foetal tissues the maternal corpuscles did not always show a higher creatine content than the foetal cells.

GEORGE E BEILBY

**Guazon P. A Case of Advanced Pregnancy in the Broad Ligament** *Philippine J Sc* 1917 xii 33

Guazon reports a case of advanced pregnancy in the broad ligament in a para VI aged 38 who did not show any of the signs of pregnancy except the cessation of menstruation. Her last child was 5 years old. Five months before the author saw the case the woman began to have paroxysmal pains across the lower abdomen usually at night. Later she noticed a tumor mass in the lower abdomen which gradually increased in size and was painful at times. She began to grow stouter and the breasts began to enlarge. A diagnosis of ovarian cyst or some kind of ovarian tumor was made and operation advised.

Upon opening the abdominal cavity the tumor mass was found to occupy the entire lower abdomen extending more toward the left iliac region. A cannula was introduced but only a small amount of pure dark blood obtained. Upon opening the mass a dead fetus of about 5 months was found. The placenta was shelled out entirely by the fingers.

The author believes this was a case of tubo-ovarian pregnancy at the beginning which became intraligamentous later following a rupture into the folds of the broad ligament. Two important points are brought out relative to the above case.

1 The treatment of advanced ectopic pregnancy should consist in immediate operation as soon as the diagnosis can be made.

2 The placenta should be removed at the primary operation provided it can be done without causing a fatal hemorrhage. H B MATTHEWS

**Block F B Dermoid Cyst of the Ovary Complicating Pregnancy** *Interst M J* 1917 xxv 96

Dermoid cyst of the ovary complicating pregnancy is by no means common. This case is reported because it proves that the tumor may be removed early without hindering progress of the pregnancy to a normal termination.

The patient a nullipara aged 24 consulted the author because of dysmenorrhea and dyspareunia. She had been married one year. Her menstrual history was negative with no pregnancies. Examination disclosed a retroverted uterus and a tumor the size of a peach on the right side diagnosed as prolapsed cystic ovary. Later she became pregnant and again consulted the author about four months after conception because of pain in the right lower abdomen increasing tenderness and nausea. These symptoms persisted and a few days later the tumor twisted once on its pedicle.

was gently removed. The patient was given morphine for two days following the operation but this was discontinued because of excessive nausea. Convalescence was uneventful and she was delivered of a normal child at term.

The author refers to cases previously reported. Barrett reviewed 14 cases and strongly recommends the early removal of the tumor. If allowed to persist too long in pregnancy, hysterotomy may be necessary in order to give sufficient exposure to permit removal of the ovarian tumor. Doyle reports a case where the tumor was removed at the fifth month and the patient kept under the influence of morphine for five days to lessen uterine contractions. Lewis in a recent article gives some interesting statistics relating to ovarian tumors complicating pregnancy. He says 68 per cent are cystadenomata, 3 per cent dermoid, 2 per cent fibroids and 5 per cent malignant tumors. Termination occurs in 80 per cent of the cystic tumors.

The author concludes in view of these facts that the tumor should be removed alive in pregnancy unless discovered late in pregnancy or so situated that the tumor does not obstruct the outlet.

W. L. BROWN

**Titus R. S. Bleeding in Pregnancy.** *B. & M. & S. J.* 917 cl. 143.

Titus insists that vaginal bleeding in pregnancy be immediately investigated since the safety of the patient depends upon an early and accurate diagnosis. To facilitate discussion the significance of bleeding is considered in relation to the first, second, and last three months of pregnancy.

While miscarriage is by far the most frequent cause of hemorrhage in the first period, the necessity of ruling out ectopic pregnancy is emphasized. If serious doubt exists as to diagnosis the author prefers to explore the abdomen by laparotomy. If rupture has occurred extreme cases are given time to recover from shock. The vaginal route he declares unsafe. Curettage is recommended to control bleeding due to incomplete and inevitable abortion. Complete and septic abortions are treated conservatively unless there is bleeding when a finger curettage is done.

Early carcinoma of the cervix is treated as if pregnancy did not exist. In advanced carcinoma pregnancy is allowed to progress and is terminated by cesarean section. When hydatid mole is diagnosed preference is given to vaginal section as the method of emptying the uterus especially if immediate emptying is necessary.

The treatment of placenta previa is adapted to the individual case. Hospital facilities are imperative. Accouchement force is discarded in treating primiparae; abdominal cesarean section is resorted to beyond the seventh month with either central or partial placental attachment when the cervix is undilated and bleeding active. The same operation is done for multiparae with urgent symptoms. If dilatation of the cervix has begun some

method of vaginal delivery is attempted; the bag being preferable to the Braxton Hicks method. Abdominal cesarean section is considered the logical treatment of primiparae with ablatio placentae. If a primipara is in labor the condition of the cervix is the deciding factor as in a multipara as to the choice of the method of vaginal delivery.

W. H. CARY

**Harrar J. A. Accidental Hemorrhage. Two Hundred and Fifty Four Cases in 100,000 Confinements at the New York Lying In Hospital.** *B. & M. & S. J.* 918 cl. 144.

Among the 100,000 confinements in the New York Lying In Hospital premature separation of the placenta took place in 254 cases. The incidence of this complication was noted in the ward service once in every 75 confinements whereas in the outdoor department which more nearly represents the conditions in ordinary practice it occurred once in 1085 confinements. The diagnosis of accidental hemorrhage is made only when the symptoms are severe enough to require treatment. It is interesting to observe that the accident occurred twice as frequently in multiparae as in primiparae. In the 52 instances of placenta previa premature separation of the placenta occurred but three times; four times in 1078 cases of twins; twice in 9 cases of triplets; six times in 650 cases of toxemia of the eclamptic type. In five instances there was evidence of antenatal infection with elevation of temperature and a foul odor of the uterine contents when delivered. External trauma was a feature in 15 cases; fibroid in 3 and a short cord in 1.

Twenty-two deaths occurred in the 254 cases; a maternal mortality of 8.66 per cent. The mortality was considerably higher in the concealed hemorrhage cases amounting to 25 per cent. No matter what the type of cases the amount of placental separation or the method of delivery with certain reservations the same conditions apply as in placenta previa: those who lose much blood die and those whose blood loss is conserved do not die. There were 33 stillbirths; a foetal mortality of 50.8 per cent in the 26 babies born. Thirty infants died in the first ten days making a total foetal and infantile mortality of 6.2 per cent. In the concealed hemorrhage group the only child that survived was delivered by cesarean section.

Of these 54 cases of accidental hemorrhage 68 delivered themselves spontaneously after simple rupture of the membranes with no deaths resulting; both due to infection 7 spontaneously after vaginal packing with no deaths 8 spontaneously after the use of a Voorhes bag with one immediate death due to hemorrhage and eclampsia. The operation was performed 8 times with ten maternal deaths. It was done 4 times after craniocaval packing 22 times after manual dilatation of the cervix and 20 as part of an accouchement force. Each extract on was done 19 times. Vaginal cesarean

section was done 5 times with one death. Abdominal caesarean section was done 7 times with no maternal death. The highest mortality occurred in those cases in which version was done after forcible or instrumental dilatation of the cervix.

In the opinion of the author the following indications would be proper in the treatment of accidental hæmorrhage.

The progression of spontaneous delivery when the patient in the first or second stage of labor begins to bleed slightly with no other symptoms.

Rupture of the membranes after the cervix is dilated to three fingers or more (1) when the patient in the first or second stage begins to bleed moderately or profusely (2) if with slight bleeding labor pains subside (3) if with slight external bleeding symptoms develop of concealed hæmorrhage.

Cervicovaginal packing with two per cent iodoform gauze (1) in a case of moderate hæmorrhage with cervix closed or dilated less than three fingers (2) if rupture of membranes fails to institute strong pains (3) if bleeding continues after rupture of the membranes pack for four to six hours to hasten dilatation of cervix and to control bleeding by pressure on uterine vessels.

Forceps to hasten labor in the second stage if bleeding continues or if the fetal heart shows signs of danger impending to the child.

Version only in cases with cervix fully dilated with head above brim and uterus not tonic. The Braxton Hicks version is not of value as in placenta prævia.

Manual dilatation of the cervix which is generally dangerous and only to be employed to reach out the remaining rim of a fairly well dilated cervix before proceeding with version but never employed in the form of an accouchement force in a cervix of three fingers dilatation or less.

Cæsarean section in a case of concealed hæmorrhage with closed cervix the child either dead or alive especially in the cataclysmic disruptive cases occurring before the onset of labor.

Hysterectomy only in cases of accompanying rupture of the uterus.

Postpartum packing of the uterus to control further hæmorrhage after delivery in every case of accidental hæmorrhage with symptoms pronounced enough to clinically identify it as such.

In brief the author recommends in the treatment of accidental hæmorrhage rupture of the membranes in the very mild cases rupture of the membranes and the use of the cervicovaginal packing in the more severe cases reserving abdominal cæsarean section for grave concealed hæmorrhage cases with closed cervix and doing a hysterectomy only when there is accompanying partial or complete rupture of the uterus.

C. D. HOLMES

Allen E. M. Coincident Pregnancy and Tubes  
Dorsalis J. Im. M. 188 19 7 1 1 4 979

The patient aged 37 entered the Los Angeles County Hospital January 14 1911, seven months

pregnant she complained of difficulty in walking for the previous three months and also of difficulty in descending stairs and in balancing herself while standing erect. She had suffered from shooting pains in the legs and thighs rather frequently for two years previous to her admission to the hospital. These were diagnosed as rheumatism by her attending physician but were knife like in severity. The diagnosis of locomotor ataxia was made on the basis of the history and the physical findings which included Argyll Robertson pupils absent knee jerks the Romberg sign an ataxic gait and a positive Wassermann test both of the blood and the spinal fluid.

She had one child born July 3 1914. Since the first child she had had two miscarriages at approximately three months each. These were spontaneous and painless and did not follow a fall or other traumatism. The first labor was short and unattended by severe pain.

March 6 the patient was examined. The perineum bulged slightly. The cervix was soft and there was approximately 1 1/2 inches dilatation. The fetal heart rate was 140 with the tones of good quality. The following day the patient had irregular uterine contractions but no pain.

March 8 the uterine contractions were of much less force. A rectal examination showed no increase in the original amount of dilatation. The head was very movable. The fetal heart tones were good and the rate 152. A rectal examination March 9 showed no further increase in cervical dilatation and no easily palpable uterine contractions. The fetal heart tones were 156. At 3 p.m. 5 grains of quinine were given with no painful effect following though at 4.30 p.m. dilatation was nearly complete. Five tenths ccm of pituitary solution were given hypodermically at 6 p.m. After approximately fifteen minutes pains began and a seven pound boy 24 inches in length was born spontaneously at 7 p.m. The pains were probably two thirds as severe as ordinary labor pains. No anæsthetic was used. The placenta delivered spontaneously twenty minutes later.

EDWARD L. CORNELL

Stroponi L. Bilateral Ovariectomy in Pregnancy.  
Labor at Term (Ovariectomia bilaterale in gravidanza parto a termine) *Ann d ostet e ginec* 1917  
LXXVIII 493

The question of removing both ovaries from a pregnant woman without interrupting the pregnancy depends strictly on two more general and more important questions (1) the possibility of intervening by laparotomy directly on the genital organs of a pregnant woman without danger to the continuation of the pregnancy (2) the possibility of completely suppressing the internal secretion of the ovary during pregnancy without ill effects to the woman either during the labor or puerperium.

To the first question clinical experience has largely replied in the affirmative. Numerous

cases of myoma and ovarian cyst have been operated upon during pregnancy without apparent prejudice to its continuation to term. The second question is more complicated and as yet remains unsolved. There is still a great deal of obscurity regarding the endocrine activity of the ovary and the exact functions of the corpus luteum etc. as regards the general organism and the gravid state.

A few authors have reported cases of bilateral ovariectomy without interruption of pregnancy. Much more numerous are the cases reported in which following castration there was an abrupt termination of the pregnancy, and very probably there are many unpublished cases. It appears however that in many cases of uninterrupted pregnancy after a bilateral ovariectomy some portion of ovarian tissue was left behind which possibly contained corpora lutea.

The author reports a case of bilateral ovariectomy for a malignant ovarian tumor in a woman of 2 years. The woman was in the fourth month of pregnancy. A tumor the size of a foetal head at term could be felt in the vicinity of the left tube. Nothing special was noted on the right adnexal site. The case was diagnosed as a dermoid cyst of the left ovary and intervention was recommended and accepted. On opening the abdominal cavity both ovaries were found tumorous and hard and apparently malignant they were removed. The postoperative course was completely normal.

Microscopic examination of the removed tumor showed the complete absence of any trace of normal ovarian tissue in either ovary. The tumors were fibrous and diagnosed as leiuc sarcoma.

During the interval between operation and term the patient otherwise well exhibited phenomena which could be interpreted as a well known signs of ovarian insufficiency and ovarian extract was prescribed. The labor occurred at term and was quite normal in all respects. The child was normal. However there was evidence of a deficiency in lactation at first which became abundant later on.

The author discusses the case and thinks from this clinical experience that it is permissible to conclude that removal of both ovaries from a pregnant woman at least after the fourth month of pregnancy does not necessarily result in an interruption of the pregnancy. He also draws attention to the fact that the mammary secretion is independent of the ovarian glandular secretion. This latter fact has long been known experimentally.

W. A. BRENNAN

C. R. C. R. Pregnancy at Term After the Schauta Wertheim Operation (Sob. d. emb. ra. o. ll. g. do. t. m. n. d. p. d. i. op. r. c. n. d. e. S. h. a. t. Wertheim) R. ge. t. de. b. t. y. g. Bue. s. A. es. 97. 33.

The patient in the case reported by C. R. C. R. was a woman aged 36 years who had a Schauta Wertheim operation for prolapse in 191. Both tubes were ligatured with catgut and sectioned at a point con-

tiguous to their interstitial part. The vesical peritoneum was sutured to the posterior face of the uterine isthmus and the edges of the longitudinal incision of the vagina were united over the anterior face of the body of the uterus. The woman became pregnant in 1914 and the pregnancy went to term. Caesarean operation was done but Porro's method could not be applied owing to the fixation of the uterus. The obstetrician therefore made a partial amputation of the uterine wall and a peritoneal suturing isolating the inferior part of the uterine incision in such a way as to realize a utero abdominal fistula. The pregnancy developed almost entirely in the vicinity of the uterine posterior wall. The woman recovered and the child was in good condition. The fistula closed up.

The author discusses three points in connection with this case.

Is section of both tubes after previous ligation and suture of the vesical peritoneum to the posterior face of the uterine isthmus sufficient to effect sterility? The author thinks it is however in the case under reference the peritoneal suture must have left a small peritoneal opening which allowed the interstitial part of the tube to be in communication with the ovary and contiguous parts. This is the only way in which the fecundation can be explained.

In a uterus whose condition is such as this can a pregnancy continue after beginning and if so what is the conduct to follow? The termination of the case reported answers the first query. The author discusses the second part and concludes that the course followed in this case viz abdominal caesarean section was the correct and only one to follow.

Under the conditions if pregnancy is diagnosed with a viable foetus ought it be allowed to progress to term? The author thinks that in the case of a woman who had no children the pregnancy might be permitted to go on but in the contrary case abortion should be induced. W. A. BRENNAN

## LABOR AND ITS COMPLICATIONS

Mazzini E. Treatment of Uterine Ruptures During Labor by the Boero Method (T. t. m. t. d. i. l. p. t. e. t. n. s. d. t. e. l. p. a. t. p. t. p. o. c. d. m. t. B. ) S. m. d. 97. 11. 85.

Mazzini publishes 5 cases of uterine rupture occurring in the course of labor and treated by the Boero method. He claims 80 per cent of recoveries.

The method is described in full detail and its principal features may be thus given in résumé. Foetal traction is done through the vagina except in case it has passed into the abdominal cavity which is infrequent. The incision the left hand carries is at the uterine neck, ascends delicately by the anterior or posterior wall of the lower segment and reaches the edge of the rupture. With the thumb and index finger the superior margin of the tear is seized about the middle line of the corpus and pulled down to ward the vagina and be given

by pressure of the right hand on the uterine fundus through the abdomen. The maneuver is carried out in such a manner that the external or peritoneal face of the upper lip of the tear is behind the internal or mucous face of the lower lip of the tear thus making the superior behind the inferior when the tear is on the anterior uterine wall and in front of the inferior when the tear is on the posterior wall.

The fingers are then replaced by four toothed forceps which remain permanently and a drainage tube is inserted. The lower segment is tamponed with iodiform gauze. A permanent sound is left in the vagina. After 72 hours the tampon drain and forceps are carefully withdrawn and a vaginal irrigation done. W A BRENNAN

Barbour H G Tyramin as an Adjunct to Morphine in Labor *J Am M* 133 1917 LXV 882

The employment of morphine in labor in recent years has become frequent probably owing to twilight sleep propaganda. Used in this connection morphine exhibits three important effects: the first desirable, the other two untoward, namely analgesia, respiratory depression in the child and delay of labor.

Since Hatcher pointed out the almost complete lack of theoretical justification for the employment of scopolamin in this connection seven years ago little if any new evidence has been introduced in its favor nor has knowledge of its obscure pharmacology been very appreciably increased. This is due in part to the varied manifestations of scopolamin action and to the unstable character of the alkaloid.

The author states that experimental work does not make it plain that morphine depression of respiration is constantly affected by its combination with scopolamin. In some instances the depression was delayed or preceded by acceleration. On the uterus itself ordinary doses of morphine in an anesthetized animal show no effect in unanesthetized animals by cerebral effect small doses of morphine tend to inhibit the rhythmic action of the uterus.

In this connection Bry Dale and Dixon have pointed out that tyramin (para hydroxy phenyl ethyl amin hydrochlorid) has two desired effects: respiratory and uterine stimulation. Tyramin the active principle of ergot is derived by bacterial action on tyrosin containing proteins. Cobey studied the effect of this drug on morphine narcosis in mice and concluded that any influence which it might have on this narcosis was probably negligible. Maurer was able to demonstrate very clearly an antagonism between the action of morphine and tyramin which was best exhibited when they were administered in the ratio of approximately three parts of tyramin to one of morphine. Most significant was the fact that the respiratory action of morphine often remained in abeyance during a period when marked analgesia was present.

The author recommends the use of tyramin forty to fifty mg and morphine sixteen mg sim-

ultaneously. This is given hypodermatically in the absence of contra indications when discomfort becomes marked in the first stage of labor. The respiratory rate of the mother becomes slightly increased rather than decreased and usually remains somewhat accelerated throughout. The condition of the child has been quite satisfactory, no tendency to asphyxia having been observed.

In every case the frequency of the uterine contractions has been increased within five minutes after the injection and this augmentation maintained throughout. The increase has usually been from five minute intervals to intervals of about two minutes with an augmentation temporarily at least in the strength of individual contractions. Forty mg of tyramin produce a temporary rise in blood pressure usually amounting to twenty to twenty five mm, this seems to be negligible in normal cases but should be borne in mind and followed closely. C D HOLMES

### PUERPERIUM AND ITS COMPLICATIONS

Barrauk E P Retained Placenta *Am J Obst N Y* 1917 LXXVI 477

Retained placenta, a completely separated placenta which remains in the uterus may be due to inefficient uterine contractions or tetanic spasm of the contraction ring. Too vigorous efforts to express it may dislodge clots and thus result in sharp hemorrhage. The author advises gentle Credé expression when the placenta does not separate and deliver itself within 30 to 45 minutes. If the placenta lies in the grasp of a tight contraction ring the uterus should be let alone until it relaxes and releases the placenta, then the placenta should be expressed by Credé.

Introduction of the hand into the uterine cavity to remove retained bits of placenta often leads to infection and death. Expectant treatment is advised if the retained part is not large or if there is not serious hemorrhage.

In summary first it should be determined whether the placenta has separated. Then gentle manipulation should be used to stimulate the uterus to expel the placenta. If this fails gentle Credé expression should be employed. W L BROWN

Reynolds C B Retained Adherent Placenta *Am J Obst N Y* 1917 LXXVI 479

If the cellular or spongy layer of the decidua is absent or becomes atrophied a preponderance of connective tissue results and the placenta may adhere partially or completely to the uterus. This occurs about once in every 500 cases. Gonorrhea and low grade endometritis are considered the most common causes of this condition.

In a completely adherent placenta usually there is no bleeding from the placental site but if partially adherent the bleeding is usually profuse and should be treated at once by manipulation and pressure over the fundus of the uterus.



In severe hæmorrhage the gloved hand should be introduced into the uterus under strict aseptic conditions and the placenta or remnants removed the external hand being used as a guide and to exert counter pressure.

The dangers in cases of retained adherent placenta are (1) inversion of the uterus in manipulating the uterus (2) hæmorrhage in the partially detached variety and (3) sepsis.

Morbidity and mortality from sepsis can be lowered by careful preparation for labor rigid cleanliness and infrequent internal examinations.

W. L. B. O'NEILL

### MISCELLANEOUS

Stein A. Influence of Labor on the Brain Development of the Child. *J. Am. M. Ass.* 97:1334

The author considers the question of preventable traumatism to the skull and its contents in long protracted labors and instrumental deliveries with reference to the production of feeble minded children. In prolonged labor damage may be done to the child's brain by one of three mechanisms: first direct contusion of the brain substance; second local congestion and rupture of intracranial vessels by the overriding parietal bones; third general congestion of the venous system causing capillary hæmorrhages of the meninges. In three of the author's cases sufficient damage was done to brain and nerve center to destroy life. He therefore assumes that unquestionably many infants survive with irreparably damaged brains.

In one series of 500 cases of mental defectives it was found that 134 cases or 68 per cent were instrumental deliveries and 75 cases or 15 per cent were prolonged labor deliveries. In another series of 56 cases of mental defectives difficult or prolonged labor appeared 15 times in 54 of these no instruments were used. In the records of Dührssen and Kuntzel among a series of 450 idiot children 4 or 009 per cent were found whose idiocy was attributed to instrumental traumatism and 23 cases to unassisted difficult deliveries.

The author cites the case of a primipara aged 27 who was in labor three days giving birth to a feeble minded child. Dührssen and Kuntzel concluded that unduly prolonged and difficult birth asserted a far more injurious influence on the child's brain than the skilled application of forceps. In

Tissier's neurologic statistics covering a series of 900 cases among 76 idiotic children 18 were born asphyxiated following difficult labors and 18 were born after difficult labors without asphyxiation. After a study of 2380 mentally deficient children Shuttleworth and Potts concluded that protracted pressure without instrumental interference was a more potent factor in the causation of mental and nervous defects than forceps and Volland showed in his report that in the same family children born in normal labor were normally constituted whereas those born after difficult labors became epileptic.

The author cited many other groups of statistics which seem to indicate the same conclusion that prolonged and difficult labors exert a more harmful effect upon the mentality of the child than properly applied forceps and that in the interest of the child protracted births should be judiciously terminated by intervention since delay until the fetal heart tones have become weak or in utero means that irreparable damage has been done to the infant's brain.

An interesting case was reported of a child with congenital spastic paraplegia who was born asphyxiated after a hard labor. The child was mentally defective and died the first year. The necropsy showed adhesion of the pia over both hemispheres and marked symmetrical trophic of the frontal halves of both hemispheres. The diagnosis was chronic meningoencephalitis undoubtedly due to an extensive effusion of blood between the pia and cortex.

The author also cited the statistics of Beauchamp's series of 810 cases of idiocy of which 43 per cent were charged to the application of forceps as against 66 per cent apparently due to prolonged and difficult labor.

In summary the author concludes first that prolonged unnecessary labor is responsible for much avoidable harmful compression of the infant's skull; second that the damage sustained by the child's brain and meninges often affects the intellectual growth; third that there should be more systematic study and records concerning the connection between obstetric traumatism and nervous diseases; fourth that the obstetric forceps correctly applied should be used to prevent prolonged labor; and lastly that the primary solution, two to three minutes hastens labor and often eliminates the necessity for the application of forceps.

L. R. H. II

# GENITO URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Merritt E P Stones in the Urinary Tract *J So Car Med Ass* 1917 xii 676

The diagnosis and management of foreign bodies in the urinary tract are placed upon a scientific basis by the cystoscope the X ray the microscope and tests of the functioning power of the kidneys.

Stones may be lodged in the kidney ureter bladder or urethra or more uncommonly in the vesicles or prostate. The idea that all stones cause severe pain is erroneous. There is generally more pain from ureteral or bladder stones than from those in the pelvis of the kidney but as a rule all urinary stones give discomfort at some period of their existence.

Symptoms of renal stones include a history of renal colic pains in kidney region referred to the lumbar region and down the thighs sometimes continued to the legs with blood and pus cells in the urine either microscopic or macroscopic. Usually the roentgen ray will give a shadow of the stone if it is not purely uratic. If stones are very large filling the pelvis and calices the question of removal arises. With this condition the functional capacity of the kidney must be determined.

Symptoms of ureteral stones are pain reflected to the front and back to the side of the vagina or to the testicle and side of the penis. If the stone is large enough to block the ureter pain is augmented. For diagnosis the X ray and the iron oxide catheter is almost indispensable. If the stone is located the patient should be given morphine and atropamine hypodermically the ureter dilated to the limit and examination made with a cystoscope. Then about 2 ccm papaverin sulphate solution is injected below the stone followed after fifteen minutes by an injection of 1 or 2 ccm of sterile olive oil. The patient should be put to bed and a hot sitz bath prescribed. This procedure is not always successful but is worth a trial before surgery is resorted to.

Symptoms of stone in the bladder vary but generally there are pains in the bladder region referred to the testicle and end of the penis. The larger the stone the more severe are the symptoms. Pain is greater on exertion and there is frequently a cut off in the flow of urine accompanied by a biting pain. Generally the stone is readily seen through the cystoscope or demonstrated by the X ray.

Stones are seldom lodged in the urethra but one such case has been observed by the writer. Stones of the prostate and seminal vesicles are more common giving rise to constant burning and irritation of the deep urethra.

Taylor G A Plea for Caution in the Surgery of Suspected Renal and Ureteric Calculus *Practitioner Lond* 1917 xcix 151

The author in a brief clinical report calls attention to the importance of careful study in cases of suspected kidney and ureteral stone and lays great stress on the importance of using the shadowgraph catheter with or without pyelography in all cases in which there is the least doubt about the nature of the shadow obtained by the roentgen ray. Many cases in which the nature and origin of the shadow producing body has not been definitely determined and a diagnosis of stone made have resulted in operation in which no stone was demonstrated.

The author has the courage of his convictions and reports one case in his practice in which he failed to resort to all methods for determining the location of the shadow producing body and upon operation found no stone.

A paper of this kind is very timely and emphasizes the importance of thorough pre operative study in this group of cases. H L KRETSCHEMER

McWilliams C A Septic Kidney Infarct from Infected Finger Nephrectomy *Med Rec* 1917 cxii 215

The patient 38 years old was admitted to the dispensary on June 3 1916 with an abscess on the volar surface of the left index finger occupying almost the whole of the anterior closed space. This was opened and made into a single cavity. Five days later freer drainage of the finger was afforded by lateral incisions. Sixteen days after this the terminal phalanx was found to be bare and necrosed.

Examination on admission to the hospital showed a tender mass on the right side of the abdomen extending from the costal margin to the crest of the ilium very tender in the costal vertebral angle. The X ray showed no calculi in the kidney or ureter. Ureteral catheterization the following day showed clear urine coming from each kidney. Examination of the secretion from each kidney showed that the right kidney probably from irritation was doing a greater amount of work than the left.

At the time of admission the patient's white blood cells numbered 14 800 and polymorphonuclears 86 per cent. The temperature was 103 F and pulse 102. The temperature remained remittent the highest being 103 F and the lowest 101 F before operation. A diagnosis of perinephritic abscess was made because of the tenderness and the lack of evidence on catheterization of the ureters of any pus focus in the kidney. Four days after admission July 7 1916 the patient was

opened up. The fatty kidney capsule was very adherent and on dissection the three abscesses were opened. These were supposed to be in the kidney substance. Nephrectomy was done and drainage provided. Culture of the pus showed the staphylococcus aureus the same organism which had caused the finger infection. A thick layer of fat adherent to the kidney was removed with the kidney. Two of the three abscesses were in this fatty capsule while the third communicated with an embolic abscess in the kidney cortex. Two rubber drainage tubes containing gauze wicks were placed in the pelvis. For one month after the operation the patient ran a very painful and unexplained temperature. Physical and X-ray examination of the chest showed no complications there. It was six weeks before the sinus closed. Two months after the nephrectomy the whole necrosed terminal phalanx of the index finger was removed under local anesthesia 2 per cent novocaine. The patient had been well since leaving the hospital after the first operation and had gained in weight.

In the later aspect of the kidney capsule was a good sized abscess the wall being very shaggy and containing broken down pus and blood. The cortex of the kidney showed a well defined suppurative process about 1 cm in diameter. In one case the cortex had been broken down and had communicated with the perinephritic abscess. The kidney showed a thickened cortex and the capsule proper stripped off with difficulty in the gross only one abscess was apparent.

EDWARD L. C. R. EL.

Rosenbach Hypernephroma M / m d  
H. Ch. Sch. 197 N. 4

Rosenbach of the surgical division of the Potsdam Hospital says that it is only recently that much attention has been paid to perirenal hematoma. Hemorrhage was observed in several instances and accounted for differently. Wunderlich and Lench had correctly described the symptomatology of perirenal hematoma as a triad consisting of early sudden pain in the kidney region, rapid formation of a retroperitoneal tumor followed by signs of internal hemorrhage.

In a case described by Rosenbach there were typical colic pains in the right kidney region and blood as well as albumin was demonstrated in the urine. Later on under the right costal arch a large intumescence could be distinctly palpated which could be pushed forward from the kidney region. There was a progressively augmenting icterus and as the tumor was rather nearer the gall bladder region than that of the kidney diagnosis could not be made a certainty. A paraareolar laparotomy was done. The tumor was situated retroperitoneally and referred to the right kidney. A lumbar incision parallel to the iliac wing was made and joined to the paraareolar incision. The inferior pole of the kidney was isolated and the tumor which was

as large as an infant's head was detached and removed. Examination showed that the tumor was a hypernephroma. The patient died two months later from pulmonary gangrene.

The author says that in this case two of the recognized symptoms of perirenal hematoma were present but the third sign, internal hemorrhage, was not demonstrated. As regards the hemorrhage from the tumor it is known that malignant hypernephromata have a tendency to hemorrhage and that hemorrhagic areas may be found on those of any conspicuous size.

W. A. BRENNAN

Garcia A. Congenital Bilateral Absence of Kidneys in a 140 Millimeter Pig Embryo. Phila. J. S. 97 9

A review of the literature on renal malformations and maldevelopments has demonstrated the fact that while unilateral congenital absence and maldevelopment of kidneys have been frequently recorded in man and the lower animals, bilateral cases though observed with comparative frequency in embryos have been reported but once or twice in the human body.

The specimen reported was a female pig embryo 40 mm long from a litter of five apparently perfectly normal specimens of approximately equal size. In external appearance and on examination of the thoracic and abdominal cavities this specimen appeared normal. Garcia's attention was called to the absence of the kidneys. The genitalia also appeared normal, the ovaries measured 5.5 by 3 mm. The oviducts and uterus were in every respect identical with those of pigs of the same size.

In the urinary apparatus the bladder was well developed, measuring 12 by 4 mm and ending in a well formed urachus. The two hypogastric arteries were also well defined and normally located. The kidneys were absent and no trace of what might be taken for rudiments of the excretory organs could be found in the neighborhood of the normal position. The two ureters were well developed and their orifices at the trigone were patent. The right ureter which appeared slightly larger and longer than the left began from the right infolateral side of the bladder, passed in an upward and lateral direction for about 0 mm, then continued upward in a wavy course over the quadratus lumborum for about 6 mm and ended in a funnel shaped expansion which was lost in the retroperitoneal fascia in this region. The left ureter slightly smaller in diameter than the right was decidedly shorter and lacked an abdominal portion. Traced from the lower inner side of the bladder it passed in a lateral direction to the back of the pelvis with a slight concavity upward for a distance of 6.5 mm and ended in a thin membrane attached to the posterior pelvic wall. Occupying apparently normal positions the adrenals appeared as two large, more or less pyramidal masses which were about three times as large as those of pig embryos of approximately the same size.

Ietroperitoneally over the right quadratus lumborum and on a level with and lateral to the expanded upper end of the right ureter a small mass of glandular like tissue of irregular shape was found. This was removed and imbedded for histological examination. Two similar bodies were seen on the right lateral portion of the posterior abdominal wall one immediately above and the other to the mesial side of the right ovary both were removed for embedding. On the left side two similar masses were also seen one of triangular shape a few millimeters lateral to the left ovary and the other oval in shape immediately below it. No other masses of tissue which might be looked upon as suspicious traces of kidney were seen in this region.

In the present case the pronephron had evidently undergone full development and degeneration leaving behind only its primary collecting duct from which the two ureters apparently normally developed. That the mesonephros had also undergone its normal course of development and degeneration was evidenced by the presence of distinct mesonephric tubules in the region of the rete ovarii forming the parovarium the normally formed uterus and oviduct and the two well developed ureters which are all derivatives of the mesonephros.

In the case of the metanephros the ureter in the right side had apparently developed upward to its normal length and its upper extremity had started to expand into a funnel shaped primitive pelvis and to divide into several primary collecting tubules. No evidences could be seen however of a blastemal cap accompanying it in this upward growth. The left ureter had apparently become arrested at the brim of the pelvis becoming entangled there in the retroperitoneal mesenchyma. Whether these ureters were accompanied by blastemal tissue from the nephrogenic cord which might have undergone complete regression or not is a question which can not be fully determined with the present findings.

From the present case the following conclusions may be drawn.

- 1 In the case of the right ureter the absence of kidney is probably due to a failure of the nephrogenic blastemal cap to appear or to develop the upper expanded end of this ureter having undergone tubular divisions preparatory to the formation of the medulla of the kidney.

- 2 The left ureter may have been arrested in its growth cephalad and become entangled with the mesenchyma of the pelvis thus failing to reach the nephrogenic cord and meeting the blastemal substance which might have existed and undergone regression.

- 3 From the apparently normal development in general of this specimen as compared with the others of the same litter it is probable that kidneys are not essential for proper growth *intra utero*.

- 4 That the adrenals are generally larger in renal absence the report made by Coen and others is also confirmed in this specimen. J D BARNEY

## Stevens A R Diagnosis of Surgical Lesions of the Kidney and Ureter N 1 M J 1917 cv1 395

Stevens' article is a very timely one and the author calls attention to the importance and necessity of localizing all surgical lesions of the higher urinary tract and emphasizes the fact that exploratory operation in this day and age is rarely if ever needed.

The author believes that in conditions of the upper urinary tract exploratory operation should always be preceded by an accumulation of data which permits of immediate judgment at the operation concerning the surgical procedure to be employed. The history while it is a valuable guide in examination is often very unreliable for accurate diagnosis. The presence of pus in the urine always demands an explanation and the routine tests employed in men are dwelt upon.

The localization of the origin of the pus calls for the services of an expert urologist and ureteral catheterization is necessary. By means of cystoscopy urethral strictures that are tight enough to cause symptoms are incidentally ruled out. The bladder capacity is noted as well as the presence or absence of tumors calculi ulcers diverticulae, etc. Even the cystoscopic picture of the ureteral orifices may give a clue to trouble higher up. Roentgen ray examination should be made a routine in all cases.

The value and importance of dye tests are discussed. Indigo carmin and thalein are the ones most in use as a routine at the present time.

The use of the shadowgraph catheter and the value of the wax tipped catheter are given due consideration. The author in conclusion makes the following statements:

- 1 Symptoms are often unreliable sometimes positively misleading.

- 2 Careful and complete examination is essential for diagnosis and means are available to arrive in most instances at accurate clean cut diagnoses.

- 3 In men cystitis is rarely a justifiable diagnosis. It is nearly always a secondary consideration and the burden of proof is on him who diagnoses a case as primary cystitis. H L KRETSCHMER

## Taylor G Some Indications for Nephrectomy Practitioner Lond 1917 cxix 57

A decided diminution in the immediate mortality from the operation of nephrectomy and the more satisfactory end results in cases submitted to this operation have been noticeable features of the renal surgery of recent years. This improvement is due partly to earlier and more accurate diagnosis of disease partly to the greater attention devoted to a thorough investigation of the functional capacity of the remaining organ as well as to improvement in the technique of the operation itself. The author contrasts Tuffier's statistics of 1899—38.4 per cent—with Fullerton's of 1913—6.2 per cent.

As a means of estimating the functional capacity of the sound kidney Taylor has frequently used

the indigo carmine and phloridzin tests but in most cases he has contented himself with the simpler procedures of Fullerton viz if the urine obtained by ureteral catheter from the presumably sound kidney has a specific gravity of 1.015 or over if it is free from albumin pus and blood and is secreted in normal quantity he has no hesitation in removing the offending organ

Case 1 was an example of congenital cystic disease in a patient 45 years of age with a severe degree of anemia consequent upon excessive hæmaturia. Such severe hæmaturia in a case of congenital cystic disease is very exceptional extirpation of the kidney was necessary to save the patient from death from hæmorrhage. According to Luzato intermittent hæmaturia occurs in 16 per cent of these cases. Taylor says in view of the facts that the condition is almost always bilateral and that the second kidney if not already the seat of the disease soon takes on the characteristic changes of the diseased organ removed nephrectomy never to be contemplated except in cases of very severe pain or hæmorrhage.

Case 2 was an example of hæmaturia due to unilateral nephritis in a woman 52 years of age. Two years after nephrectomy the patient was in robust health. Many authors have emphasized the importance of performing nephrotomy alone in such cases but the condition of Taylor's patient was such that if the bleeding had persisted after the less radical operation she would have been in no state to stand secondary nephrectomy.

Case 3 was one of hypernephroma in a woman aged 69 who suffered from profuse hæmaturia associated with frequency of micturition. Some months previous she had had her appendix removed by an eminent surgeon. Right sided nephrectomy was performed because the continued bleeding was rapidly enfeebling the patient. After operation the hæmaturia ceased and the frequency disappeared but the patient subsequently developed recurrence in the flank and died some six months afterward.

Case 4 was an example of acute hæmatogenous infection of the right kidney in a cadet at Sandhurst who was lying in a condition of semi stupor with a temperature of 104° F a rapid pulse and passing large quantities of pus in the urine. The kidney proved to be a small hydronephrotic organ which had become acutely infected with a coliform organism and converted into a pyonephrosis. The patient was in excellent health when last heard of. In cases of large pyonephrosis the method of subcapsular nephrectomy as practiced by Federoff of Petrograd and recommended by the Mayos deserves to be better known than it apparently is.

P G S ILLERN JR

Schneider R J F Tests for Estimating the Function of Kidneys *U S M J* 97  
19

Schneider reviews the history of urinary examinations. Progress alone these lines is traced to the

present day with our modern urological procedures such as cystoscopy ureteral catheterization and tests of the renal function. The history and details of various tests of kidney function are described beginning with cryoscopy and including methylene blue phloridzin and indigo carmine. The method of application and the value of these tests is discussed. The author then takes up the phenolsulphonophthalein test in detail and after a full description of its use concludes that work done with this test since its introduction in 1911 justifies the claim that this test gives the most reliable information regarding the efficiency of the kidney function and makes it unnecessary at the present time to modify any of the original statements of its authors.

J D BARNEY

Tchertkoff J Indicanæmia a Symptom of Renal Insufficiency (*Lancet*) 1917  
511 R Méd de l S Sé R m 1917  
487

Tchertkoff says that he was the first to point out the true significance of indicanæmia. His studies have shown him that it is a sign of severe renal insufficiency. The technique of his method for discovering indican is as follows: 8 to 10 ccm of serum obtained from scarification or venous puncture of the fasting patient is added to an equal quantity of 20 per cent trichloroacetic acid. This is filtered and 10 ccm of the filtrate is added an equal quantity of a solution of concentrated hydrochloric acid containing 8 gr of perchloride of iron per liter. This is shaken and 3 ccm of chloroform added. Upon examination 15 minutes later the chloroform will be found to vary in color from pale to deep blue according to the quantity of indican in the serum. If there is no indican the chloroform does not become colored. If the serum contains iodides the chloroform takes on a rosy tint and it is well to exclude iodides before making the test for indican.

In acute nephritis with renal insufficiency indicanæmia first appears when azotæmia reaches nearly 150 g per liter.

The author concludes that his method is a simple one within the reach of all practitioners. In his opinion the presence of indican in the blood demonstrates a severe renal insufficiency corresponding to an azotæmia of 15 per cent. Indican is never found in patients with renal sufficiency. In chronic nephritis the presence of uræmia is a sure precursor of death. It is only a matter of weeks or months.

In acute nephritis the renal insufficiency is only temporary. In certain cases of azotæmia under the influence of treatment or functional incompetency the quantity of urea scarcely exceeds the normal. Study of indicanæmia will furnish more exact results than study of a uræmia both as regards diagnosis and prognosis. In spite of a minimum azotæmia the gravity of the renal insufficiency is established if indicanæmia is demonstrated.

The study of indicanæmia also answers certain theoretic questions. True uræmia is a retention of different substances produced in the organism and not alone a retention of urea. W. A. BREYER.

Beer E. The Significance of Ureteral Tubercle Bacilluria. *Am J M Sc* 1917 cliv 231.

The problem is replete with difficulties which may be encountered by those dealing with patients suffering from urogenital tuberculosis. Very few categorical statements are permissible. In each individual case it is necessary for the surgeon to weigh the evidence carefully before determining whether he is dealing with a case of renal tuberculosis or not.

Tubercle bacilli may be present in ureteral specimens under three conditions even though their presence usually indicates a renal tuberculosis.

1. When there is a tuberculous focus in some other part of the body and the bacilli are excreted from a non tuberculous kidney.

2. When there is a tuberculous focus in the genital or urinary tract by contamination or by ureteral reflux.

3. When the tuberculosis is in the upper urinary tract or kidney.

Three cases are carefully reported. The author makes no categorical statements as to the significance of the ureteral tubercle bacilluria as each case must be decided upon its merits and only after such careful study as each patient will permit is it possible to decide as to whether the tuberculous disease has involved the kidney or not. Before one has reached a definite decision that the ureteral tubercle bacilluria is due to renal tuberculo is the next step removal of the kidney must be relegated to the future. EDWARD L. CORTELL.

## BLADDER, URETHRA AND PENIS

Squier J B. Vesical Neoplasm. *Am J Surg* 1917 xxxi 22.

The author's conclusions are based on the collected reports of various observers dealing especially with the incidence of benign as compared with malignant neoplasms of the urinary bladder together with the prognosis of each type following different methods of treatment. With one exception these observers are of the opinion that malignant tumors outnumber benign tumors of the bladder and present numerical values to verify this opinion. Adenoma, angioma, myoma, and sarcoma are briefly discussed.

A considerable advance in methods of treating vesical malignancy is apparent by a comparison of Roynolds' statistics in 1908 of 80 patients with more modern reports. Of his 80 patients 34 were treated by ablation of the mucous membrane and pedicle with cures after a period of five years. In 5 patients resection of the bladder wall and the tumor resulted in 1 patient remaining free from recurrence for one and one half years and 1 for one

year. Three total cystectomies gave fatal recurrences within a year.

More modern treatment of these conditions characterized by earlier diagnosis and more complete resections produces more hopeful results as seen in Gardner's statistics of 442 collected cases in which excision of the growth only is attempted with 88 per cent mortality whereas in 224 cases of partial resection recurrence takes place in 43 per cent. Here a gain of 50 per cent warrants but one conclusion.

Complete extirpation of the bladder preceded by transplantation of ureter or nephrotomy is applicable only to infiltrating tumors involving the trigone and vesical neck. The operation is often a failure due to the advanced stage of the malignancy which contra indicated any other procedure. Later deaths are usually due to renal infections especially those with colonic or rectal ureteral transplantation.

The unanimous opinion regarding the treatment of vesical papilloma is removal by fulguration. Some prefer the Oudin monopolar park while others favor the D'Arsonval bipolar. It is generally believed that fulguration is only of value in checking hæmorrhage in malignancy while for papilloma it is curative. HARRY CULVER.

Wynne H M. Observations on the Degeneration of Leucocytes in the Urine as a Diagnostic Aid in Tuberculosis of the Urinary Tract in Women. *Bull Johns Hopkins Hosp* 1917 xxviii, 231.

In 11 cases of renal tuberculosis the tubercle bacillus was demonstrated in 10. Unfortunately the other case did not show any leucocytic degeneration nor were red blood-cells seen in one examination.

Acid fast bacilli have not been found in any case of non tuberculous pyuria although numerous means have been examined carefully. In all 72 cases of pyuria were noted in 2 of which the possibility of tuberculosis could not be positively eliminated and these cases have not been tabulated. The majority of these patients were not under observation long enough to be thoroughly studied.

The table includes 11 cases of renal tuberculosis for which nephrectomy was performed. 15 cases of non tuberculous pyuria in which the possibility of tuberculosis was definitely eliminated by operation or autopsy, and 20 cases in which there was no operation but the clinical picture and results of treatment rule out tuberculosis.

The voided urine from five patients contained well preserved leucocytes whereas in the catheterized specimens there were no leucocytes.

Degenerated leucocytes in the urine are not pathognomonic of tuberculosis of the urinary tract but a marked degeneration is strongly suggestive of this disease. The absence of degeneration of leucocytes does not eliminate tuberculosis. The cytological study of the urine cannot replace the demonstration of tubercle bacillus or animal

inoculation as a means of diagnosis at best it offers presumptive evidence EDWARD L. CORNELL

Krotoszyner M Upon the Modern Treatment of Bladder Tumors *Clinical Surgery* 97 359

The author summarizes a consensus of medical opinion regarding the pathology of bladder tumors as follows

It is generally assumed at present that villous vesical tumors as a rule are only apparently benign that they may harbor a malignant nucleus and that originally benign papillomata may become malignant by metaplasia. Thus it may occur most frequently that a truly malignant growth is treated like a benign neoplasm.

Moreover the histological examination of tumor particles either eliminated spontaneously with micturition or in the course of bladder irrigation or obtained by intravesical application of cystoscopic scissors or rongeur is often frustrated as regards diagnostic reliability and shorn of its value as a therapeutic index. By good authority it has been advised to consider every bladder tumor as possibly malignant and treat it as such. Equally radical surgical measures have been recommended and occasionally carried out in the presence of insignificant and pedunculated papillomata as against infiltrating broad-based neoplasms possessing all the earmarks of malignancy.

The author raises the question of the advisability of removing bladder tumors in face of the recognized poor end results of radical surgery and quotes in justification the reports of Guyon, Albarran, Weir, Casper, and Stein who observed vesical neoplasms that had existed from 29 to 42 years without distressing symptoms.

Krotoszyner reports two cases illustrating a similar observation. One case aged 70 upon cystoscopic examination in 1906 showed papillary carcinoma and has without treatment except for an occasional attack of hematuria suffered from no local symptoms and at present enjoys good health. In another case aged 64 a typical broad-based infiltrating carcinoma was observed 15 months ago and the patient's present condition both locally and generally remains entirely satisfactory without treatment. For the control of hematuria in this malignant case not subject to operation the author advises injections of highly concentrated nitrate of silver 100 ccm of 1:1000 to 1:500 solution and this treatment repeated every second or third day.

In conclusion fulguration is advised for every bladder tumor until lack of success has proved the inefficacy of the treatment. Next excision of the tumor through suprapubic cystostomy should be considered unless located near the trigone or involving one or both ureteral openings. Those cases in which transplantation of one or both ureters would be necessary are better reserved for more conservative or expectant treatment although Watson's bilateral nephrostomy as a sequel to total cystectomy in the face of distressing symptoms

may be indicated as preferable to a continued miserable existence FRANK HENMAN

Kirby E R Some of the More Unusual Affections Involving the Deep Urethra and Bladder *Pfizer* 197 755

The author makes a plea for a more thorough endoscopic and cystourethroscopic examination in hitherto undiagnosed conditions involving the deep urethra and neck of the bladder. The conditions mentioned which have been previously mistreated are lesions of the sphincter edge such as bullous oedema and polyp and papillomata in various portions of the deep urethra. Particular attention is called to the pathology of the colliculus where such conditions described as erosions granulations polypoid cysts papillomata and deformities of various types are found. I. S. KOLL

## GENITAL ORGANS

Watson E M Prostatic Hypertrophy with Tabes *Vitality* 97 448

Not infrequently prostatic hypertrophy is complicated with tabes dorsalis which may not be recognized and the presence of this complicating factor alters the method of treatment to be followed. In early tabes definite clinical signs are frequently absent. The presence of residual urine frequently difficulty in starting the stream dysuria with some dribbling after voiding and incontinence is a picture commonly presented by either disease and also by the two together. It is very important that the proper diagnosis be made in these cases and a thorough neurological and urological examination should be made. As to the method of treatment it requires judgment and experience with both the spinal and prostatic bladder. With definite middle or lateral lobe hypertrophy prostatectomy may be considered. If there is incontinence with considerable residual urine for which the prostatic hypertrophy seems responsible the perineal method is the route of choice. If there is no incontinence the suprapubic should be the route of choice. For median bar obstruction the Young punch operation is advised. H. G. H. MEER

Ketschmer H L Benign Hypertrophy of the Prostate and Its Treatment by Suprapubic Prostatectomy *Surgical Clinics* 1918 1

The author cites a number of cases and emphasizes the fact that a careful examination must be made in all cases of urinary trouble especially in elderly men as carcinoma of the prostate is more common than previously believed. He also emphasizes the fact that time is an important factor in these operations and that the less time it takes to remove a prostate the better the results. The method of operation and the preliminary preparations depend upon the individual patient.

The anæsthetic used also depends on the patient. The author uses one of the following (1) ether (2) gas-oxygen (3) sacral or spinal

A pre operative study of each case is necessary for an accurate diagnosis to rule out all other lesions for a careful study of renal functions for a careful comprehensive differential diagnosis

These result in a better preparation of the patient a smaller mortality and quicker work

In conclusion the author emphasizes the fact that cystoscopic examination before operation and control of hemorrhage following operation are two important factors

A C STOKES

Judd E S Infections in Prostate Cises *Ann Surg Phila* 1917 lxi 362

In a somewhat detailed study of a small series of cases the author has attempted to ascertain as nearly as possible the part infection plays in the reactions which take place during the pre-operative treatment of patients either by draining the bladder through an urethral catheter or through a supra pubic opening

He believes that infection in the kidney is the most important factor to be taken into consideration and he questions whether many of these patients do not have a more or less chronic infection of the kidney from the beginning of the urinary symptoms That a kidney may be infected with out passing organisms into the urine continuously the author has been able to prove at autopsy in several instances during life the urine was free from evidence of infection although at autopsy considerable evidence of infection was found

Three routes by which the infection reaches the kidney are mentioned (1) by the blood stream (2) by way of the urinary passages (3) by the lymphatics Judd believes that the infection reaches the kidney by extending into the lymphatics and then entering the blood stream

The effect of the infection on the renal function depends on the part of the kidney involved If the infection attacks the cortical part the renal function may appear normal if the infection enters the region of the tubules the phthalein output is usually greatly diminished

In nearly all examinations in which blood cultures were made in this series of cases the cultures were negative Cultures of the urine in five cases showed that before treatment of any kind was instituted staphylococcus albus was demonstrated in four Four or five days after beginning pre operative treatment or after prostatectomy all five cases showed colon bacilli in addition to the staphylococci

Judd draws the following conclusions

1 In prostatic cases a definite reaction occurs during the pre operative treatment In some cases this reaction may be due to infection in the kidney

2 Several days after the beginning of the treatment or after the operation has been performed in a very large majority of cases the urine shows a considerable number of colon bacilli This cannot be due to contamination in every instance al

though it is impossible to say whether it comes from the kidney the bladder or the prostate itself

3 The infection may be walled off in the kidney and no organisms will show in the urine Simultaneously with any form of treatment the infection becomes active and the urine immediately shows bacteria

4 Colon bacillus vaccine may modify the infection though it does not decrease the number of bacilli in the urine

H L KRETSCHMER

Payne R L Jr Surgery of the Prostate *Virg M Semi Month* 1917 xxii 235

Payne has reported a series of 55 suprapubic prostatectomies with one postoperative death and ascribes this low primary mortality to the fact that he never employed either continuous irrigation or the indwelling catheter after the operation Continuous irrigation according to the author is a hindrance to clotting in the prostatic cavity while the indwelling catheter is liable to cause fatal embolism by producing vesical and sphincter spasm and thus forcing clots into the general circulation

Particularly noteworthy are several points in the author's technique Preliminary distention of the bladder before cystotomy is never practiced The usual midline incision is used with the exception that one of the recti muscles is divided as the nutrition of muscle is held to be more favorable to early healing of the fistula than an incision in the dense midline fascia The bladder is opened between two towel clamps by means of a clean cut of the entire opening desired enucleation is effected easily and quickly by striking the line of cleavage first in the roof or lateral walls of the urethra except when removing the small and hard fibrous gland In this case a V shaped piece of tissue is removed by scissors the area of excision extending well out to each lateral wall of the urethra and posteriorly to the rectopelvic fascia Immediately following enucleation the cavity is packed with one large dry gauze pad firmly pressed into the site of the enucleation followed by a second pad held tightly in the cavity until all oozing is controlled Hemostasis by these means should be kept up for at least five minutes by the clock Then a cigarette drain three fourths of an inch in diameter with a large fluffed end is inserted into the prostatic cavity and finally the bladder and abdominal incisions are sutured up to the drain

Essential features of the postoperative care are the following Immediately upon return to bed one quart of plain warm water is given per rectum and one pint every four hours thereafter One or two grains of sparteine sulphate is given hypodermically every four hours for two days The cigarette drain is removed at the end of forty eight hours and the bladder is then irrigated twice daily through the suprapubic fistula with a solution of hydrochloric acid 1:500 to 1:250 By these means the suprapubic fistula is generally closed about the fifteenth day after operation



For purposes of a *laethes* a nitrous oxide con sidered preferable to ether or chloroform. The author is most favorably impressed with the results of local anæsthesia (novocaine infiltration) and he is convinced that removal of enlarged prostates under local anæsthesia gives the greatest margin of safety. In conclusion the author emphasizes the danger of procrastination in the necessary operation on the part of the family physician. The best time for surgery as a rule is when the lesion is first discovered.

M. K. R. TOSNER

Kolche G and Instaedt J S A New Method of Anæsthesia in Prostatectomy  
S. 5 Cl. Cl. 978

The authors state that in order to make local anæsthetic a success the anatomy of the region must be well known and the anæsthesia must be complete.

The per prostatic plexus is first thoroughly infiltrated by way of the perineum with Schleick's solution. Next the bladder is filled with a 1 per cent protagol solution containing antipyrin to relax the patient. Before operation a full dose of morphine is administered so that the patient does not suffer any shock when the first injection is made.

A wide area of the skin fascia and tissues is injected so that there is no shock when traction is made by the retractors. Upon opening the bladder traction is made on the prostate. If there is no pain the perineal injection is as successful. Otherwise more solution must be injected.

A. C. STOKES

Deaver J B Prostatectomy A. S. 57g Phil  
9 L 37

The author considers the value of functional tests and cystoscopic examination pre-operative treatment and a selection of cases for prostatectomy are given careful consideration.

He has divided cases of vesical obstruction into three groups.

Group 1 may be made to include those cases of early prostatic hypertrophy that present few subjective signs in which the bladder capacity is approximately normal with small amounts of infected or non-infected residual urine, a normal phthalein output and no serious organic defects of the heart or blood vessels. Cases of this kind may be operated upon when the patients are acclimated to their hospital surroundings when the various tests have been carried out and after a cystoscopic examination has been made without deleterious after effect.

Group 2 includes cases in a later stage of prosta

tism with or without marked secondary systemic symptoms. The residual is generally large and may or may not be infected. The bladder walls are atonic and the diminution in kidney function is dependent almost entirely upon back pressure. Patients in this group are often fair surgical risks at the outset and will become excellent risks with the institution of proper pre-operative treatment.

Group 3 includes cases in which a small contracted severely ulcerated bladder gives rise to distressing symptoms. There is generally an infection of the upper urinary tract. The obstruction is frequently of the stricture variety and of inflammatory origin. If the obstructive factor is an adenomatous mass it is usually of the horse collar or ball valve type. The mortality is high and the morbidity dependent upon operative complications is great.

H. L. KRETSCHMER

### MISCELLANEOUS

Walther H W E Hæmaturia Its Clinical Significance  
V. 11 M. S. J. 97127

In a high percentage of cases hæmaturia is the first and only symptom of malignancy somewhere along the urogenital tract. Hæmaturia is encountered most frequently in cases of tumor calculus tuberculosis or infection somewhere along the genitourinary tract. Of 8 cases observed by Walther tumor of the genito-urinary tract was the most frequent cause of hæmaturia occurring 36 times or 51 per cent of the cases of which 9 or 7 per cent were carcinomatous.

H. G. HAMR

Bueg L N W Combination Observation Catheterizing and Operating Cystoscopy  
V. 11 M. S. J. 97347

In this brief article the author describes a new type of cystoscope which he has been able to develop after much experimentation. The sheath of the catheterizing cystoscope has been reconstructed so that the same sheath which is used for catheterization can also be used with the operating cystoscope with the result that the patient is spared the pain and necessity of having a second instrument introduced into the bladder after a diagnosis that requires intravesical operative procedure.

A narrower deflector in this instrument became necessary and the manipulation of the ureteral catheter is consequently slightly more difficult. The author believes this feature to be of much importance considering the advantages gained in the use of the combination instrument.

H. L. KRETSCHMER

# SURGERY OF THE EYE AND EAR

## EYE

**Cosse and De Lord** Fragments of Bony Tissue in the Vitreous Body (Fragments of tissus o seut dans le corp vitr) *Rev gén de clin et de thérap* 1917 xxi 55

A soldier with a penetrating wound of the cornea developed symptoms which necessitated enucleation. On examining the enucleated eye three foreign bodies were found in the vitreous which had all the appearance of bone tissue and were found to be that. There was no fracture either of the orbital walls of the face or of the limbs so far as could be discovered. Further inquiry showed that one of his comrades who was wounded in an explosion at his side showed multiple fractures. It was from this wounded comrade that the bone fragments had been projected into the eye of the author's patient.

W. A. BRENNAN

**Tilderquist D. L.** Prescribing Lenses After the Use of Cycloplegics *J. Lancet* 1917 xxxvii 610

The author states that cycloplegia is the most exact method possessed for determining the refraction of the eye. It happens quite often however that the patient experiences discomfort from glasses prescribed after its use. Tilderquist believes that the main error of the prescriber is over correction. In uncorrected hyperopia the ciliary muscle has developed abnormally in attempting to carry the extra strain when a full correction is given the ciliary muscle will relax only a part of this added tonus and the patient experiences discomfort. In myopia the reverse is true the ciliary muscle is partly atrophied from disuse and it will not take up without protest the activity which a full correction calls for.

In forming a true judgment as to the amount of the total spherical error to correct the cylindrical error in general being corrected in full the writer has found the method of Le Fever of Philadelphia extremely useful. This investigator has determined in a very definite way the influence which the factor of age has upon ciliary activity. His tabulated results show that in hyperopia the patient who has not previously worn glasses accepts a gradually diminishing percentage of his total error from childhood onward to the age of about 32 and that in myopia there is a gradual loss in the power of accommodation from the age of 15 onward to about the age of 35 at which latter age the power of accommodation has entirely disappeared. For instance a hyperope at the age of 10 will accept with comfort approximately 80 per cent of the total error at 20 50 per cent and at 30 30 per cent the myope up to the age of 15

will accept full correction at 0 about 75 per cent of full correction at 5 about 50 per cent and so on. In either case if the patient has previously worn glasses the calculation is based on the difference between the old correction and the total error as found under cycloplegia.

The writer has followed this method for at least five years and has found it in the main very satisfactory. It is invaluable in cases in which post mydriatic examinations can not be done.

## EAR

**Stein O. J.** Sudden and Profound Deafness Its Significance *J. Am. M. Ass.* 1917 lxxvii 706

The author does not consider such types of deafness as present slight or only partial impairment of hearing even if taking place suddenly nor cases in which profound or absolute deafness ensues gradually from chronic changes in or about the hearing apparatus. Only profound cases of deafness which appear suddenly are discussed and illustrated with case reports. The following conditions are mentioned:

- 1 Bleeding in the middle ear in a case of pernicious anemia
- 2 Hemorrhagic effusions into the labyrinth
- 3 Syphilis of labyrinth eighth nerve or brain centers
- 4 Diffuse labyrinthitis

Otto M. Rott

**Long C. H.** The Radical Mastoid Operation Its Termination with Reference to Hearing and Suppuration *Ill. M. J.* 1917 xxxvii 171

The author has reported his results of the mastoid operation in a series of twelve cases with special reference to hearing and suppuration.

He concluded that failure to stop the discharge was often due to an insufficient knowledge of the anatomy a disregard or ignorance of the variations of type of the individual human skull or a failure to make the meatal opening large enough to secure proper drainage and permit proper cleansing.

Undue haste operating without warrantable indications and neglect of subsequent inspection and care of the ear might also cause unfavorable results. He states that a recurrence of the suppuration was more frequent when the eustachian tube was closed than when it was open and that the infection entered from the external auditory meatus.

His experience led him to feel that the radical mastoid operation was fully justified since the suppuration was cured in 100 per cent of his cases and the hearing was either unaffected or improved in 80 per cent of his cases.

Den h E B Indications for the Mastoid Opera-  
tion in Acute Otitis Media *J Am M 1*  
917 1 878

The author outlines the classic symptomatic indications for operative interference in acute mastoiditis. Proper drainage of acute middle ear infection through the drum membrane effects a mastoid recovery with a minimum of surgical interference. The mastoid is a part of the middle ear and therefore every middle ear infection a mastoiditis. If drainage through the middle ear is insufficient either on account of the virulence of the infection or the peculiar topography of the mastoid posterior drainage must be instituted.

The persistence of severe pain or the continuation of pain for twenty-four or forty-eight hours after incision is an indication for posterior drainage. A persistent high temperature or remittent temperature indicates posterior drainage. The author lays particular stress on recurrent tenderness, e.g. the initial tenderness disappears the mastoid becomes practically insensitive to pressure in the course of a few days the tenderness returns and is more marked at the antrum.

The signs found on instrumental examination the author believes are the most important. It reveals insufficient drainage through the drum membrane and discloses a bulging of the upper and posterior portion of the drum membrane together with a sinking of the corresponding adjacent meatal walls. Bacteriologic examination is of

considerable importance since the unusual forms of microorganisms can be detected. The streptococcus capsulatus gives rise to most persistent symptoms and calls for a poster or drainage. No case of this sort should be considered safe. Patients should be under observation until the middle ear has returned to normal condition hearing returned to the standard previous to operation and all canal signs have absolutely disappeared.

A profuse discharge lasting more than three weeks or a discharge which suddenly stopped is an indication for poster or drainage. A single competent incision of the drum membrane for acute otitis media will drain the middle ear and adjacent structures. The moment that it is necessary to repeat these incisions the indication for posterior operation becomes imperative. The author condemns repeated incisions of the drum membrane since it tends only to mask the symptoms and causes destruction of the deeper tissues.

Impairment of hearing which is persistent after an acute attack, vertigo and persistent nystagmus usually toward the diseased side mean extensive infiltration of the bony structure surrounding the labyrinth capsule and operative interference in all such cases is indicated.

Local edema, headache or severe general headache are dangerous meningeal symptoms. The author recommends spinal puncture. X-ray is of value in old cases. In acute cases the radiograph shows a cloudy mastoid.

M A B R STEIN

# SURGERY OF THE NOSE, THROAT, AND MOUTH

## THROAT

Loeb H W The Susceptibility to Infection Manifested by the Remains of Incompletely Removed Tonsils *Tr Am Laryngol Is N J* 19 7 May

If a portion of the tonsillar lymphoid tissue is left after operation especially if it happens to contain a crypt it is very much inclined to persist in *status quo*. It may never occasion any unpleasant result but it is present nevertheless with its susceptibility to infection reduced though it may be. What is considered an atrophied tonsil usually signifies that the tonsil tissue has become somewhat more covered by the anterior pillar and has in part simply disappeared from view.

There must be a not inconsiderable number of cases in which tonsillar stumps remain even in the practice of the most experienced operators and the author cites five cases showing infection originating in such tonsillar remains.

These cases definitely show that small masses of tonsil tissue overlooked or at least not removed at the operation are susceptible to infection with remote effects similar to those which follow acute tonsil infections. They must have their counterpart in the practice of other laryngologists and from his own experience Loeb believes it must be common enough to constitute a fairly definite clinical entity. They present a decisive argument against any form of operation which does not contemplate the entire removal of the tonsil especially where there has already been some infective processes originating in the tonsil.

They suggest the advisability of following up cases of tonsillectomy to determine whether any portion remains and whether it has become a focus of infection.

Watson A W Report of a Case of Carcinoma of the Larynx Treated with Radium *T Am Laryngol Is N J* 19 7 May

A physician about seventy three years of age presented himself November 24 1914 with a history of increasing hoarseness for a year without inflammatory symptoms pain or cough the general health was good the general history was negative.

Examination of the larynx showed a smooth red sessile growth or swelling on the left side beneath the vocal cord extending from the anterior commissure backward about one half the length of the cord and downward from the cord about one half inch. It seemed to involve the under surface of the cord

Movement of the anterior half of the cord was restricted which caused bowing in phonation. The growth was sharply defined and the other parts of the larynx appeared to be healthy. A clinical diagnosis of carcinoma (epithelioma) was made. For obvious reasons a microscopic examination was not made.

When first seen by the author the growth was one that could undoubtedly have been removed by laryngotomy but in consideration of the age of the patient and the fact that he was in favor of trying the effect of X ray or radium it was decided not to operate.

The radium was applied to the outside of the larynx 11 milligrams radium filtration one millimeter of lead and one and one half inches of gauze for three hours. This was repeated in February (six treatments 198 mg hours). March 1 the radium was increased to twenty milligrams filtration one milligram lead one half inch gauze applied for three hours. This was repeated (six times 360 mg hours). March 17 forty milligrams of radium were used filtration same as before applied for three hours. This was repeated (six times 720 mg hours).

Various applications were made none of them satisfactory and it had to be abandoned. The external application of the radium was again instituted in the following dosage 40 milligrams radium filtration one millimeter lead and one half inch gauze applied five hours July and August (in all nineteen applications 4 200 mg hours).

September 23 about one month after discontinuing the radium it was noted that the growth was apparently gone. The left vocal cord was a little slower in movement than the right and the skin inflamed over the larynx.

On the second of April 1915 the patient returned with hoarseness which he had noticed for a month or more. Examination showed a small nodule beneath the edge of the left vocal cord near the anterior commissure the site of the old trouble. Radium was again used a few days later 40 milligrams for twelve hours. The larynx was examined two weeks later. The growth was found to be smaller the neck inflamed. April 25 only a slight thickening remained. The voice was again almost normal. The same condition was present when last examined.

From the results seen in suitable cases and with a better knowledge of the dosage better results may be expected especially if the radium can be applied from within the larynx which would be made easier by a tracheotomy.

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# International Abstract of Surgery

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B vn W L 1	C ldst M A 86	M tin P J 84	Tak k S 26
B ll E C 4	G ldth t J E 65	M y W J 31	T n J 4
Bull k F D 33 5	Gonz l C 40	M y t L L 64	T nt J L 39
B tt J W 68	Gonz l E 78	M cl W B 5	T yl H L 34
C mpb ll J 6	Go a t I 57	M Cl H 0 3	Thalh mer W 8
C mpbell W C 4	G h R B 5	M ll C J 60	Thomp n I A 86
C mp che P S 138	G f W H 43	M ll H R 4	Thomp n J E 8
C stella o T 33	C tl C C 5	M t W J 8	T r P 45
Ca a a gh J A 86	G th D 85	M tg m ry E L 6	V n Z l e b g J G
C l A B 8	H llé \ 76	M J L 8	64
C l A 49	H lle 37	M t I 4	V lla d C 9
Ch lm A J 8	H l t d A F 4	M g C E 87	W lk S 138
Ch p H D 3	H rr g A H 3	N k E 67	W lt rs F A 7
Ch ry t H 39	H yem L 6	N m J W 55	W lt A J
Ch ry t H 7	H m F 76	O h A J 58	W r I 7
Chr t phe on J B 8	H d r B M 4	O d R B 6 4	Watk T J 7
Cl g R 59	H d L O 64	I H M 5	W so N E 156
Colc d A W 6	Il ll A J 7	I lm D W 28	W bb C R 8
C leb o k L 59	Igl S 5	P k C A 47	W C M 6
C ll C U 67	I gal E F 85	P k J F 0	W l l H L 4
C t v J W 8	It be I 78	P kl m I I 47	W ht G B M 15
C l H 57	J k H P 68	P y J F 3	W l ky A O 8
C mt C G 7	J ks C 5	f t C 38	W ll m
D k H D 4	J ks W k 3	I q C I 4	W ll A M 3
D f th W C 73	J h t W H 33	P A H t 3	W lly R G 55
D d Cl a d H 7	J op o J H 9	Il 64	W gl m W H 6
D C H 73	J dd E S 8	I ym I L 6	W hlb h S B 58
D c t H 3	Kea n y J A 83	O E I	W lk H A A 8
D G E 3	K ley C G 57	K m C 8	W dy tt K T 5
Del c I A B 17	K rm o E 53	P l t H M 24	Yo J K 36
Del m E 6	K E L 5	I dl J 39	Z b k J A 16
D ni W A 3	Klopf E E 8	P bb s F W 8	Z se H 60
D p ge A 57	K gg R L 35	K b t P W 37	

# INTERNATIONAL ABSTRACT OF SURGERY

FEBRUARY 1918

## COLLECTIVE REVIEW

### LOCAL AND SPINAL ANÆSTHESIA

By ARTHUR E. HERTZLER, M.D., F.A.C.S., KANSAS CITY, MISSOURI

THE literature on local anæsthesia which has appeared during the last three years may be divided in general into three classes. The first includes those papers in which the author describes his first few cases operated upon under local anæsthesia. These papers express the delight of the author at having found something that is new and are often of value. A second class of papers is concerned with the major operations not usually undertaken under local anæsthesia and present in a measure the extreme range of possibilities. These do not always reflect keen judgment but are useful in that they serve to keep the audience awake to the advantages of local anæsthesia. The third class of papers include those by writers who have studied details in the technique of local anæsthesia with discernment and understanding.

On the whole recent literature indicates a vastly widening appreciation of the advantages of local anæsthesia. A general knowledge of the subject is taken for granted and minor subjects are not considered. Abdominal surgery is being done under local anæsthesia much more generally than formerly and operations about the neck and genital organs are being accepted by many surgeons as most properly attacked under local anæsthesia.

#### DRUGS EMPLOYED

Novocaine is very generally the drug employed. The strength of solution generally used is one half to one per cent with stronger solutions up to two per cent for blocking large nerves. No toxic symp-

toms have been recorded. McCardle (91) reports a case in which death occurred after a small amount of novocaine was used in the skin. Larger amounts of the drug are being employed than were formerly regarded as safe. Jacoby (75) used 10 grains in one case and 23 grains in another without harmful results. Daugherty (27) has used 250 ccm. of one half of one per cent of novocaine and Jacobson (74) has used 12 ounces of one half per cent novocaine in a case of bilateral inguinal hernia. Kroenig and Siegel (81) have used as much as 165 grams in a single operation. The last named authors note that these large doses cause a smaller and more rapid pulse. Morian (94) studied the urine after local anæsthesia. He found albumin in five to ten per cent of cases in amounts varying from a trace to 0.5 per thousand. It began a few hours after the operation and lasted forty-eight hours. A few casts were found. It occurs usually in patients who have postoperative vomiting. Hogan (65) thinks the kidneys are injured by the acid production from the increased muscular tonus. According to him this should be avoided by local anæsthesia. Harris (58) had one case of postoperative pneumonia in 380 cases.

Cocaine continues its reign of frightening if not frightfulness. Engstad (39) records alarming symptoms following the instillation of a few drops of a two per cent cocaine solution into the conjunctival sac of a girl of twelve. The alarming symptoms subsided after inhaling four breaths of ether. Smith (124) finds nitroglycerine an effective antidote. He uses small amounts of this drug regularly in the solution in order to



only and that ultimate recovery always follows. The condition must be rare for Boyd and Yount (18) in over six thousand anæsthesias with this drug observed no instance of ocular palsy.

#### OPERATIONS ON THE NOSE AND THROAT

The current literature presents a wide range of method in the use of local anæsthesia in tonsillectomy. These indicate that any method that succeeds in depositing a limited amount of anæsthetic solution about the tonsil will give satisfactory results. Wilkinson (139) gives one half grain of codeine just before operating and then paints the surface of the tonsil with six per cent of cocaine solution. He uses one per cent alypin solution for the infiltration. He injects the anterior surface of the tonsil the superior plica the middle posterior surface and a few drops beneath the mucous membrane at the base of the tonsil. Thompson (135) proceeds much more simply. He injects between the tonsil and anterior pillar at the level of the lower third of the tonsil. He expects to strike the nerve at the depth of three fourths of an inch. Lewis (88) after a preliminary injection of morphine begins by swabbing the field of operation with a four per cent cocaine solution followed in a few minutes by swabbing with a ten per cent solution. He then injects a two per cent novocaine solution in the most prominent part of the tonsil and then in the anterior and posterior pillars. Patton (96) passes a short needle through the center of the tonsil and deposits 15 to 20 minims of the anæsthetic solution just after the point of the needle pierces the capsule of the tonsil.

Harris (57) describes his technique for the removal of the larynx. He uses the usual blocking of the cervical nerves as in thyroidectomy and in addition injects a few drops of the solution into the mucous membrane of the trachea. The pharynx supplied by the glossopharyngeal nerve requires special anæsthetization. He tries to avoid the pneumogastrics. It may be added that no serious consequences would ensue should these nerves inadvertently become anæsthetized.

#### THYROIDECTOMY

Two general plans are followed. The one represented by Lahey (84) involves injecting a layer at a time. A preliminary dose of one fourth of a grain of morphine is given half an hour before the operation. A two per cent novocaine solution is injected directly into the skin. The incision is made at once. By this plan the tissue about the veins is injected and the vessels ligated without delay. The platy ma is next injected and severed.

The region along the mastoid is then injected. The muscles in front of the mastoid are now clamped and cut. The other type of operation is represented by Hertzler (61) who injects the whole field before beginning the operation. The essential points are the blocking of the cervical nerves in front of the sternomastoid muscle. The skin and muscular layers are injected both to augment the nerve blocking and to secure the vessel contracting action of the epinephrin.

#### ABDOMINAL OPERATIONS

Weiner (138) uses one fourth of a grain of morphine three quarters of an hour before beginning the operation and usually repeats just before the operation. An ounce of one per cent novocaine solution containing twenty drops of adrenalin then suffices for the operation. Jacobson (74) uses morphine and scopolamine.

Most operators are content to inject the actual field of operation. A few seek by the more difficult method of blocking the spinal nerves at the exit to secure anæsthesia of a wider field. Adam (1) anæsthetizes all trunks from the fifth dorsal to the third lumbar. Kroenig and Siegel (81) block the intercostal nerves from the sixth down in upper abdominal operations and from the eighth down and the iliohypogastric and ilioinguinal in pelvic operations. Jones (76) finds the method tedious and trying probably meaning to include both patient and operator.

#### PROSTATECTOMY

The removal of the prostate under local anæsthesia may now be accepted as a routine procedure. The general principle followed is that after a suprapubic opening into the bladder has been made the capsule of the prostate is anæsthetized by the injection of the anæsthetic solution following the plan laid down by Legueu (86) in which the prostatic capsule is infiltrated through the bladder. There are as many individual variations in the method of doing this as there are operators and I dare say each patient represents some minor variation in technique.

Barrington (10) after a preliminary injection of one fourth of a grain of morphine injects one half of one per cent novocaine solution into the sheath of the prostate paying particular attention to the posterior lobes. Under guidance of a finger in the rectum he injects to a depth of one half to one inch at this point. If pain is caused at any stage of the operation enucleation is suspended and secondary injections are made. Sherwood Dunn (117) makes injections through five sacral foramina.



and has devised an elaborate scheme for the ready localization of the foramina. In cases of obesity he passes the needle into the hollow of the sacrum between the rectum and coccyx. Eisenstaedt (37) elaborates on the technique as generally employed of infiltrating the vesical plexus by passing the needle guided by a finger in the rectum through the perineum to the space between the prostate and levator ani muscle following in this the lead of Pernier (98). The objection to this method is that it requires the introduction of the finger into the rectum a procedure always liable to carry infection even with the most pains-taking changing of gloves. This is an elaboration of the method of Allen (5) and seeks to displace the sacral anesthesia of Lewis and Bartels (87) and Hertzler (62).

#### OBSTETRIC OPERATIONS

Sporadic attempts at the control of pain in certain stages of labor by means of local anesthesia have been made by obstetricians without gaining general acceptance however. King (77) uses a two per cent novocaine solution entering the needle two to four cm above the lower margin of the vagina and two cm from the ramus. The needle is passed to a point just beneath Colles' fascia from two to four cm. Another injection is made between the anus and trochanter likewise about four cm deep.

#### SPINAL ANÆSTHESIA

Spinal anesthesia is used less frequently than formerly in operation on the upper abdomen but maintains its place in pelvic surgery particularly in genito-urinary surgery in males. Novocaine seems to have gained a definite place tending to displace stovaine formerly more generally used. Boldt (16) uses a ten per cent solution after removing one half to one ccm of spinal fluid.

Although as a routine anesthetic spinal anesthesia is regarded as more dangerous than ether anesthesia a few operators employ it extensively. Extended use has shown that it is particularly dangerous in certain conditions by avoiding these the proportionate mortality no doubt will be lessened.

Babcock's work (9) is perhaps the most notable recent communication. He employs it for an astonishingly wide range of cases. He notes that in toxic and greatly weakened conditions spinal anesthesia is dangerous. He states that 50 per cent of patients who have had ether have headache as compared with 20 per cent after spinal anesthesia. Boyd and Yount (18) have had an ex-

perience that entitles them to speak. In 6220 cases they have had 4 deaths. They have mild headache and backache in 50 per cent of their cases and severe headache and vertigo in 1 per cent. They ascribe the severe cases to aseptic inflammation. The best remedy for this condition they have found to be repeated spinal puncture removing from 10 to 5 ccm at each sitting. Steel (129) finds that the headaches due to spinal anesthesia yield to pilocarpine sweats. He thinks the withdrawal of cerebrospinal fluid makes the condition worse. Stanley (128) using tropococaine had headaches in 8 per cent and catheterization was required in 18 per cent. He places the patient in a Trendelenburg position of 10 or 12 degrees after using one and one half grains of the drug dissolved in 25 minims of the spinal fluid. Deboyle (29) regards spinal anesthesia as contra-indicated in young children, old age, recent syphilis, acute infections and febrile tuberculosis. Tuffier (136) thinks its use should be avoided in emotional subjects and in those suffering from medullary affections.

While most operators have been cautious in the use of spinal anesthesia in conditions of great weakness particularly in anæmic states, Huggins and Casleman (70) recommended it in general weakness of the cardiac muscle. They believe it allows the heart muscle to rest because dilatation of the splanchnic vessels during anesthesia allows the blood to accumulate in this region thereby causing a fall in the blood pressure.

#### SACRAL ANÆSTHESIA

In general this method has followed general lines laid down by the earlier writers. The disposition to use large amounts of a weaker solution proposed by Hertzler (6) is being generally followed. Lewis and Bartel (87) for instance advise the use of 30 to 90 ccm of the solution. These authors introduce the term caudal anesthesia an innovation not generally followed due probably to a scarcity of caudal appendages that require anesthetization. Pickens (10) also has found that large amounts of the weaker solutions give better results than small amounts of a stronger. He also found extremely corpulent patients are not good subjects for sacral anesthesia. He now uses a stiletted spinal needle recommended by Harris. In six cases ether was required and in thirteen local anesthesia had to be used as an adjuvant. In those which were successful anesthesia was complete in from six to twenty minutes.

Smith and Porter (15) believe that the fall in blood pressure following sacral anesthesia is due to paralysis in the splanchnic region. They believe the fall is due more to the amount of drug used than to the site of injection. A greater fall in pressure occurred when adrenalin was used than when the novocaine was used alone. The findings of these authors is opposed to the findings of Gray and Porter (53) who believe the fall is due to general muscular relaxation.

#### LOCAL ANÆSTHETICS FOR THE CONTROL OF PAIN

A number of years ago alcohol was quite extensively used for the injection of inoperable carcinomata. The theory was that fibrous tissue growth was thus stimulated, the rate of growth thereby being limited. The use of this drug did limit the pain. Dyas (35) has again called attention to the use of this drug for the control of pain. Alcohol can be effectively used for neuralgia, notably in the trifacial variety, by making peripheral injections only. The second branch may be reached by injecting through the labial fold. Usually the foramen can be palpated with the needle. The third branch may be controlled by injecting it at its exit from the mental foramen. The patient is spared pain if novocaine about one half of one ccm. is first injected. Full strength grain alcohol is then used, receiving its dilution from the novocaine solution previously injected.

The use of injections for the control of neuralgia, notably sciatica, by the injection of salt solution about the nerve is not new. Hecht (60) reviewed the literature and presented his own results. Rosenheck and Finkelstein (110) in fifty cases got favorable results in only twenty per cent.

I regret to note that no paper has appeared on the use of quinine and urea hydrochloride for the cure of sciatica. This drug injected directly into the nerve or at least at the location of the nerve gives uniformly favorable results. The most convenient place for striking the nerve is where it passes over the neck of the femur. This bony structure gives reliable data as to the proper depth to which the needle must be passed. By successively changing the direction of the needle the nerve will be struck. The patient will indicate this event by the complaint of pain down the thigh or in the calf, sometimes even in the foot. I use four grains of the drug in an ounce of water. The patient should remain in bed a few days after the injection has been made. No fear of too extensive or permanent anesthesia need be

feared. At most the patient states that the leg feels too short or feels as if it were made of wood. The relief of pain is hailed with so much gratitude that these sensations are heralded with joy. The injections are repeated in a week. Three or four usually are sufficient to complete a cure. I have not seen it fail even in the long standing cases where a compensating scoliosis has developed.

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# ABSTRACTS OF CURRENT LITERATURE

## GENERAL SURGERY—SURGICAL TECHNIQUE

### OPERATIVE SURGERY AND TECHNIQUE

Stewart I. T. A Method of Gastro Enterostomy  
*Int Surg Phila* 1911 lvi 334

The author describes a method of his own for performing gastro enterostomy without clamps. He maintains that it has no greater and perhaps less danger of leakage than when clamps are used. The other advantages claimed for it are chiefly that it is accompanied by less traumatism to tissues is sure to be free from postoperative hemorrhage and is more readily performed.

The author's method consists in inserting a celluloid suture through the stomach and intestine at each end of the sites chosen for the new communication. By keeping traction on these sutures the jejunum and stomach are kept in close approximation. The usual posterior stitch is next introduced. The peritoneal cavity is then walled off and incisions made in both viscera close to the line of suture exposing the blood vessels which with a small bit of underlying mucous membrane are not as yet severed. The blood vessels usually five or six in number are doubly secured with hemostats and the mucosa opened between them. Taking first the posterior wall each pair of vessels one gastric and one intestinal in the exposed edges is ligated with a single strand of chromic catgut after drawing the edges together by means of the two forceps in closest proximity. These ligatures not only prevent any hemorrhage but hold the edges of the mucosa in firm apposition.

The anterior edges are drawn together by beginning at the end farthest from the surgeon. The two forceps which lie opposite each other are held together by an assistant. The right end of the ligature is passed around the forceps on the intestine from right to left, the left end is passed around the forceps on the intestine from left to right so that the ends emerge between the forceps beneath the loop of the ligature. The forceps are now brought parallel to the long axis of the wound and rolled toward each other inverting the mucous edges of the wound. Each succeeding pair of vessels is dealt with in the same way.

The rest of the procedure is much as in the usual operation. The serous suture which has already been inserted along the posterior side is continued along the anterior portion and tied at its point of origin. The location of the incisions in both the stomach and intestine is determined by

the usual rules laid down for gastro enterostomy. Of the last 40 patients upon whom this operation was performed 38 recovered without mishap and two died both of whom had inoperable carcinoma and succumbed to exhaustion and pneumonia on the sixth and seventh days.

GATEWOOD

Quain E. P. The Transverse Incision in the Upper Abdomen. *J L Med Soc* lxxvii 657

The author draws his conclusions from his experiences based upon 39 operations on the biliary tract, 34 upon the stomach and duodenum, 4 upon the right kidney and 6 exploratory operations of the upper abdomen all made through the transverse epigastric incision.

The appendix was removed through the same incision in over 30 per cent of the patients. A number of these operations were made in the presence of acute local infection and peritonitis such as perforated gastric and duodenal ulcer, septic gall bladder and duct and subhepatic abscesses.

Quain believes that the transverse incision has in no instance shown itself to be contra-indicated even in the most septic condition. Only two patients have returned with any evidence of postoperative hernia. He believes that both the anatomy and the physiology of the abdominal wall are injured by cutting in a longitudinal rather than in a transverse direction and that restoration to normal is impossible after many of the longitudinal incisions that are now in vogue.

E. C. ROBITSHKE

### ASEPTIC AND ANTISEPTIC SURGERY

Brown W. L. What the European War has Taught in the Treatment of Wounds. *South M J* 1917 x 809

It is still too early to be able to reach conclusions derived from the observations of the eighty or more thousands of physicians stationed along the thousands of miles of battle front. In the present war the men are fighting in a territory which has been cultivated and fertilized for generations. The missiles are of a far more destructive type so that practically every wound is infected and the so-called normal bullet wound with its small entrance and exit wounds is almost unheard of. The first aid packet in common use in the English and French armies is of little use because the wounds are too extensive.



clothing must be thoroughly carried out. When complicated by a fracture incisions must be made to explore and cleanse the fractured ends of the bone and to remove all loose spicules. All fragments adherent to the periosteum are preserved.

The following is the method used for the administration of the Dakin solution.

The wounds are filled with a large number of small rubber tubes to carry in the Dakin solution. Each tube is about the size of 16 French perforated at the end with a number of small holes and usually tied off at the open end to allow the fluid to run out of the smaller holes. The fluid is introduced at a pressure of 1 meter and on account of the numerous holes of small size the fluid is forced out very much like a spray. Each tube is destined to spray a limited section of the wound so a very large wound may require a dozen or more tubes. These tubes are coupled up by special branch tubes of glass which lead to the tank containing the Dakin solution over the patient's bed.

The dressings are applied largely in one piece and are made very light the theory being not to have a big dressing into which the fluid simply accumulates. The Dakin fluid is admitted by releasing the stopcock of the irrigator and allowing a prescribed quantity of the fluid to flow out into the small tubes every two hours. The amount will vary according to the number of tubes and the size of the wound. The object is to keep the wound damp without flooding it and the exact amount of fluid has to be studied by the typical condition of each wound and by experience. The fluid is somewhat irritating and it is wise to protect the skin with yellow vaseline. The wounds are dressed daily.

M. A. BERNSTEIN

#### Bashford E. F. Sterilization by Dakin's Solution and the Occurrence of Secondary Haemorrhage *Lancet* Lond. 9.7.11 595

The present investigation had its origin in the question of whether or not secondary haemorrhage is more frequent under some forms of treatment than in others. It was suspected that the walls of healthy vessels lying exposed in wounds might be corroded by the antiseptic solution employed. The histological investigation of vessels from which secondary haemorrhage occurred had not lent support to this suspicion since without exception such vessels were found to have suffered previous damage. In a few cases the damage was purely physical and in one instance the physical injury was associated with an aseptic thrombosis. In most cases septic thrombosis was present. In others the bleeding point was surrounded by granulations showing that corrosion was not the cause of the haemorrhage.

Experiments were made with chloramine, Dakin's solution, eusol, flavine, iodine and mercury perchloride. The method adopted consisted in the immersion of living tadpoles in various dilutions of the substances to be tested. The experiments conducted at a temperature of 24 to 26°C.

The following observations were made:

1. By snipping off the tail some distance from the anus and dropping it into broth it was first ascertained that the skin of the tails of tadpoles yielded a heavy growth of gram-positive and negative organisms: bacilli, streptococci and coliform bacilli and were therefore suitable for this investigation.

The lethal concentrations of the several solutions for the tadpole were then determined and the condition of the tail as regards sterility ascertained immediately after death the nature of the lethal action being left out of consideration as immaterial.

3. When a minimum dilution sterilizing the skin of the tail at death had been found a new series of experiments was made to ascertain if sterilization could be effected in non-lethal solutions.

4. Thereafter the minimum time required to sterilize the tails was ascertained and then was compared with the time required to cause the death of the animal.

5. Finally the corroding or digesting action of the several solutions on the abdominal wall was noted.

The author presents tables to show that Dakin's solution and eusol are practically parallel both in their lethal effects and in their power to sterilize living tissue, the latter action taking place in half the time required to produce death but the solutions differ in their power to digest dead tissue.

Chloramine by comparison with Dakin's solution and eusol is shown to be relatively less toxic to the animal and the minimum time which it requires to sterilize the tail is a much smaller fraction of the time required to kill the animal or about one-fourth of the time required by other substances.

Flavine has not the same power to sterilize the skin of the tail, sterilization having been obtained but once at death by a dilution of 1 to 2,000. Iodine and mercury perchloride have only been tested for the purposes of control.

As the question of the corroding action of Dakin's solution on the wall of healthy vessels has been raised in connection with secondary haemorrhage, the digestive power of this solution was tested on the abdominal wall of tadpoles. One dead tadpole and another live one were put in Dakin's solution in dilutions of 1:1,000, 1:1,000 and 1:4,000. The abdominal wall of the dead tadpole was digested in these solutions in 30 minutes, 2½ hours, 3 hours and 40 minutes respectively. The abdominal wall of the live tadpole was digested in these solutions in 40 minutes, 3 hours, 3 hours and 55 minutes respectively.

It would appear that the local action of Dakin's solution was held in check by an efficient circulation either by providing protein-containing fluid or by carrying off and rendering harmless the hypochlorites as they approach living tissue without entering into combination with them. The author thinks that his experiments are an expression of the limited extent to which Dakin's solution can injure living tissue in the presence of an efficient circulation.

Were the erosion of sound vessels the usual cause





exerted that Browning adopted not less than 24 hours contact in his experiments and the author questions whether such a slowly acting germicide is going to supersede germicides which even if less potent act more quickly.

To ascertain the toxicity of flavine for leucocytes Browning incubated a mixture of flavine serum and leucocytes for 10 minutes. The author thinks no inference is justifiable as the test for toxicity upon bacteria was for 24 hours and it might be similarly slow for leucocytes.

The author's experiments resulted as follows:

1. *Bacillus perfringens*. A similar quantity of dust was placed into each of 8 test tubes. Recently boiled milk and flavine were added and the tubes heated to 80°C for 15 minutes and incubated anaerobically for 3 days. From this experiment the author shows that in a highly albuminous medium the inhibitory power of flavine upon the development of organisms of the *Bacillus perfringens* group lies between 1:4,000 and 1:10,000.

2. *Staphylococcus* in broth. Five ccm of broth were inoculated with 0.05 ccm of a 24 hour broth culture of *Staphylococcus aureus* and flavine added. The mixtures were incubated at 37°C and 0.1 ccm subcultured into the broth after 9 hours and 24 hours. This experiment showed the germicidal power of flavine on *Staphylococcus* to lie between 1:5,000 and 1:10,000 for a 9 hour exposure and 1:10,000 and 1:100,000 for a 4 hour exposure.

3. A similar experiment on *Staphylococcus* in saline was made with the same results.

4. An experiment with *Staphylococcus* in saline containing a larger number of organisms than in experiments 2 and 3. 1 e. 4,000,000 cocci per ccm showed the germicidal power of flavine to lie between 1:2,000 and 1:4,000.

5. An experiment upon human serum containing 0.05 of broth culture of *Staphylococcus* showed the germicidal power of flavine to lie between 1:15,000 and 1:20,000.

6. *Staphylococcus* in pus. The pus was of a purely *Staphylococcal* nature from an abscess of the neck. With 1 ccm of pus was mixed 1 ccm of the flavine solution and after incubation loopfuls were sown upon agar and into broth. Here even 1:200 flavine did not completely kill the *Staphylococcus* in the pus judging from the agar subculture and in the broth subcultures the germicidal strength lay between 1:200 and 1:1,000.

From these experiments the germicidal power of flavine appears to be much lower than that stated by Browning and his co-workers. The results with pus are poor and many disinfectants equal or surpass flavine and have the advantage of much more rapid action.

V. C. HUNT

Stewart D. H. Bipping of Blacksmithing. *Med & Surg* 1917 1:825

Bipping is derived from bipp, a paste composed of one part of bismuth, two parts of iodoform and one part of liquid paraffin all well triturated and

grit free. The tissues are thoroughly rubbed with this and the wound is filled with it. Drainage tubes are not required and when the tightened sutures squeeze the opposite walls of the wound together any great excess of paste upon the skin may be wiped away. The bandage is applied as usual and left for two weeks. After its removal the smear may be washed away with a grain to the ounce of iodine and alcohol.

After citing a case from Morrison's article on "The Treatment of Infected Suppurating War Wounds" Stewart discusses the subject of fistulous tracts from metal screws used with metal bone plates. There may be many of these tracts as there are screws the skin openings may be discrete but an injection of colored paraffin oil will reveal along the upper surface of the plate a dead space or lacuna that unites two or more of these tracts. Wherever there is such a dead space though it be but the depth of the notch upon the head of the screw there is a possible reservoir for a stream of septic flow. In its power of filling gaps and pits bipp is ideal.

Stewart makes two suggestions: (1) the use of bipp when the plates are placed; (2) when a fistulous tract has formed the employment of a long incision exposure of the plate and the application of bipp.

P. G. SKILLERN JR.

## ANÆSTHETICS

King E. L. Nitrous Oxide Oxygen Anæsthesia. *Med & Surg* 1917 1:843

The author's report is based upon experience in 1,000 operations ranging from curettage and extraction of teeth to major abdominal procedures such as cholecystectomy, cholecystenterostomy, gastroenterostomy, etc. All the operations were preceded by morphine and atropine.

The advantages and disadvantages of this anæsthetic are detailed. Cairns' apparatus is pictured and described; this device transfers gas and oxygen from large to small cylinders thus reducing the cost from that when the gas is taken primarily from the small cylinders. The author has used Crile's anoxic association technique with great satisfaction to himself and benefit to the patients. In abdominal work he has found it essential to adhere rigidly to the originator's technique.

In order to obtain the best results in the use of gas it is essential that: (1) the operator be accustomed to this anæsthetic; (2) that the administrator know the limitations of gas as well as its advantages; (3) that the patient be properly prepared; and (4) that the operation to be performed be suited to the anæsthetic.

P. G. SKILLERN JR.

Page H. M. and White G. B. M. Ether Oil Anæsthesia by the Rectum. *Lancet* Lond. 1917 cvcm 643

The apparatus required is very simple: an india rubber catheter, a funnel, a medicine measure, an

empty medicine bottle with a cork for shaking the mixture this shaking must be done forcibly for two minutes

A simple leaning of the bowel an hour or two before the injection in addition to the usual use of medicine is an advantage. One fourth of a grain of morphine and one hundredth of a grain of atropine is given half an hour before the ether oil injection. From twenty to twenty-five minutes before the time of operation solutions of a mixture of two parts of ether and one part of oil are slowly administered by the rectum simultaneously being pumped in making this injection with the passage of three or four inches into the rectum. When the operation is finished the remaining three or four inches of the rectum are irrigated with a large rectal tube and finally the patient is continued until no further oil can be introduced in the returning fluid. Before withdrawing the tube three ounces of olive oil are poured into the rectum and left there.

The author states that following this technique there have been no pulmonary complications. The return of consciousness is not delayed. When the winding of the large intestine is finished the patient is left in the lithotomy position. The author has used this method of anesthesia in 4 cases all coming from the operation except two cases of lumbar myelitis and one case of an abscess of the spine. In two of the abscesses the abscess was the cause of irritation of the spinal cord. In the first case a day or two in the lithotomy position was followed by the bowels for a few days. The author has used this method of anesthesia in 10 cases of peritonitis. The solution is used.

V. C. H.

Zbrocki J. A. Practical and Efficient Method of Anesthesia. *D. I. C. M.* 91: 993

Zbrocki condemns the open drop ether method as a crude and unscientific method and holds it responsible for all the ill effects that ether bars today especially as regards nausea and vomiting. It is irregular and uneven with tendency to acidosis. He also condemns the so-called nitrous oxide ether as a more dangerous method since it has a tendency to raise the blood pressure enormously to make the patient not only responsible for many deaths.

Zbrocki advocates oil for anesthesia for neurotics and in all operations upon the respiratory tract, head, neck, mouth, jaws, chest, and abdomen for gout and denod. Oil ether anesthesia is contraindicated in all pathological conditions of the lower bowel such as sigmoiditis, hemorrhoids, ulcers, fistulae, and in emergency cases.

The advantages of oil ether anesthesia are the prevention of shock, narcosis is of smooth uniform depth and nearly normal pulse and respiration. There is little or no change in blood pressure, the reflexes are not disturbed, hypersecretion of mucus is absent, there is no hemorrhage in mouth, head and neck surgery.

Nitrous oxide and oxygen anesthesia he considers the luxury of all inhalation anesthetics. It has proved to be 100 per cent efficient. By this means it is possible to anesthetize all patients in any form of surgical operation. M. V. F. DERS. 71.

## SURGICAL INSTRUMENTS AND APPARATUS

Campbell J. A Splint for the Treatment of Gunshot Wounds Involving the Shoulder. *J. Int. B. M. J.* 1917: 48

The treatment in a base hospital in France of a large number of gunshot wounds involving the shoulder joint has impressed the author with the great necessity for securing adequate rest and fixation combined with a tension and secondly the absence of any useful method for attaining this. Accordingly the idea suggested itself that a splint made after the principle of a Jones abduction frame for the lower limb would prove useful in such cases.

After the use of such a splint in several instances the author is quite convinced of its efficacy. The author has found that the patient can be easily cared for and the dressings changed without pain or discomfort. Furthermore patients can be transported in it with ease.

After the period of a uterine sepsis subsided the cases were put in plaster with the limb still in the abducted position but with the elbow flexed and holes were cut in the plaster to permit access to the wounds. The cases were then sent to England.

P. G. SKI LEEN JR.

Osgood R. B. Adaptation of the Thomas and Johnson Splints to Obtain Fixation of the Arm in an Abducted Position While the Patient is Ambulatory. *B. I. M. J.* 97: 477

Thomas has demonstrated quite clearly that the use of his splints of Thomas and those which Sir Robert Jones has devised are very largely universally adaptable. As soon as one becomes familiar with the use and appreciates the soundness of their simple mechanical principle they are becoming more and more the method of choice and the results obtained are becoming more perfect.

The principle of tension by traction and counterpressure makes of these splints a unique apparatus which provides easy and comfortable transport and allows the desired treatment in the base and home hospital to be continued with complete satisfaction without hanging of the apparatus which may be and normally is applied at the casualty clearing station. At the dressing station the comparatively cheapness of the material, their small bulk and easy packing, other advantages possessed to the same degree by no other splints which the author is familiar with. He questions the wisdom of devising other forms of splints at the present time since the benefits of unit construction and universal use are so obvious that it seems rather that all surgeons should take themselves in the rush to try that they find difficult.

Many orthopedic surgeons have been accustomed to use plaster of Paris and feel that equally good results may be obtained with these dressings in combination with metal or plaster bridges. These bulky casts should be abandoned; they are time consuming in application and demand the acquirement of a certain specialized technique.

In fractures of the head or neck of the humerus and in injuries to the bones or muscles of the shoulder girdle the author has been impressed with the value of fixation with extension in the abducted position. In his experience there are a surprisingly large number of these injuries. Not only may better alignment and more speedy subsidence of the septic process be gained by the abduction but the comfort of the patient seems greater in this position. There can be no doubt that future function also is favored. As Jones has pointed out even a stiff shoulder with the arm in 60 degrees of abduction provides a surprisingly useful limb. As soon as the septic process begins to subside and the fever under control ambulatory treatment increases the resistance of the patient and greatly simplifies the cure.

The suggestions made by the author are in no way modifications of these splints but merely adaptations which may be found to increase their usefulness. Sufficient trial has been given in the

wards and in transport to England to seem to prove their practicability. Many other adaptations may easily be made.

P. G. SKILLERN, JR.

**Fiddian J. V.** A Pneumatic Tourniquet for Amputations and Other Purposes. *Lancet* Lond. 1917 cxliii 648.

This tourniquet has the advantages that it is easily sterilized and can be easily controlled by an anesthetist standing at the head of the patient.

The tourniquet consists of a rubber bag two inches wide and some twenty inches in length. Halfway along one edge of the bag is inserted the inlet tube in T fashion. The inlet tube is four feet long and ends in a stout bulb which is fitted with a valve and a simple spring clip.

The bag is fitted in a cover which may be sterilized and has a leaden brick to prevent rolling when distended. In use the bag is wrapped around the limb, the inlet tube passing toward the head. A two and one half inch linen bandage is then firmly applied over the tourniquet and the bag inflated till the distal pulse disappears.

In operating upon patients with brittle arteries less damage will be done by this tourniquet than by any other because the pressure is just sufficient to compress the artery and can be released immediately after the artery is tied.

V. C. HUNT.

## SURGERY OF THE HEAD AND NECK

### HEAD

**Drudin Clavaud H.** Facial Paralysis Consecutive to War Wounds. (Contribution à l'étude des paralysies faciales consécutives aux blessures de guerre). *Thèse de doct.* Bordeaux 1917.

Seventeen cases of facial paralysis consecutive to war wounds have been treated surgically by Moure according to a new procedure. The report deals only with paralysis consecutive to a lesion of the facial nerve in the fallopian aqueduct or in the parotid region. The facial nerve may be primarily injured by a traumatism or secondarily as the result of infection; it may be the only nerve injured or it may be associated with injuries of other nerves. Bilateral section of the seventh pair is exceptional.

In the presence of a war facial paralysis it is of the highest importance that the surgeon should precisely locate the site of the injury of the nerve and the exact type of lesion whether a neuritis, a compression or a complete or incomplete section.

Paralysis with a parotid location is less serious than in an intrapetrous location and among these latter the least grave are those which involve the nerve in the second or third part of the fallopian aqueduct.

Surgical intervention should be as early as possi-

ble and is contra indicated in only one case viz hemiatrophy of the face.

In the case of paralysis of the facial nerve in the parotid region the cicatrized surfaces must be opened, all thick cicatricial tissue which separates the lips of the wound removed and formation of such new tissue suppressed. If the nerve filaments are sectioned the two ends should be juxtaposed. If the ends cannot be found operation should be confined to approximating and suturing the deep lips of the wound.

In paralysis of the facial nerve in the fallopian aqueduct one must proceed as in a radical cure by enlarging the tympanomastoid canal to the maximum so that the bony portion of the fallopian aqueduct is fully exposed. The thin piece of bone covering the nerve is lifted up with a gouge. The nerve should then be followed from above down ward and any morbid alterations found are corrected. The intervention is very delicate and requires cleverness and facility and should be undertaken only by one thoroughly familiar with the surgery of the region. The lesions of war are atypical and the alterations are numerous.

The results obtained by Moure are excellent. In 12 operations there were 6 recoveries and the other 6 recently operated upon promise at least 4 more successful recoveries.

W. A. BRENNAN.

Mixt r W J Fractures of th Base f the Skull at  
th Mas chusetts Gen al Hospital B t  
M - S J 57 L 58

The author collect d all the cases of proven or practically certain fractures of the bas of the skull occurring from 1900 to 1917. H then eliminated thos cases in wh h op rat on co ld not b consid ered and also thos in wh h th pt ent died from mult plc injuri s ith n t v lours aft his entran e to th hospital th sl g only th rly ases of fra tur of th base.

By oper t on th th r clud s o ly th surg cal proc dur s h l h e a d comp si e eff t. Th utho total numbr f cas s vas or w th a total of 163 d ath or a mortality of 34.1 p r cent. Th r wer o c s str t l e p c t n lly w th r 3 death a mort lty r t e of 8 p nt. The re o s ope at d upon ith 40 d ths a mortality r t of 43.4 p nt. Th total numbr of cases op t d upon th r lo e v 306 p r c nt.

B t een 1800 and 1900 th r v c o r s s 9 p r c nt of th se r op r ted upon with a mortality of 67 p c nt. From 1900 to 19 th r er 126 cases 3 p r cent of th w re op r t d up n with a mortality of 54 p r t. Fr m 19 to 91 there w r 4 c s s 5 p r nt of th e r operated upon with mort lty of 36 p nt.

Ther w r instances of pr v m n t i s th out ope at on and r with op r t on. Pro v n tr cran al hmo rhag ithout deh t local b s gns occu r d 4 tim s ith det nite lo alizing signs. 9 tim s Op rat ons p form d with n t v d ys of th t m of jury umb r d s with a mortality of 4.2 p r c nt. Op rat ns p r i o m d more than two d y s f o m tim of inj y numb red 7 with mortality of 71 p cent.

The author call attent n espec lly to the r l tive h gh mort lty in late op r t ons. Among h statisti massiv hemo rrh ges were l o f o d at autopsy or op rat on in 6 cases. Si ty p r cent of this numb r show d ind finite or no localizing neurolo c symptoms.

In such condit ons a r ght subtemporal d compression is performed fo the reason that t l s area is a slent one and uncovers that po t on of the base most frequently njured the middle meningeal artery. It permits thorough e plor tion of that portion of the skull nd br n. The l t ded subtemporal d compress on uncov rs the speech nter and a traumat sm or pr ssure is l ble to c us a paralysis of the power of speech. The author advises ealy de ompr sion in proper csc of fracture of the base of the skull. L H H Ls

Chr stoph rson J B and Chalmers A J Frac  
tu d Base of th Skull the Subsequent H s  
to y of a Cse and Its T m natio T enty  
Fotr Y rs Aft the Acc dent J l l d  
) 7 48

In March 1917 the a thor sa the pt nt a man of sixty f v who complain d of d c nfort below the occipital gion of the head. He h d a

temp rature of 104 F. H became unconscious and apoplectic the next day and never regained co sciousn s. The only additional symptom was in quality of the pupils the r ght being fid. Death occurred 34 hours after illness began.

Nearly t e ty four years prevously he received a fracture of the skull he remained unconscious for t elv ks finally eco ring but with the loss of taste and mll. He appeared to recover completely except that any orry or exertion caused his h ad to h. This hove r was reliev d by rest and b d th admin tratio of a p r n.

At po t m t m a small bscss the s of a thumb n l w s d er d in th frontal lobe. The p th l g t port th t sect ons of the frontal lobe of th br v o t t l (r m positive d plococci) h i m of them havin (r m egative elem t. Th i pl occi separe te and in ch as ha b c i f n l eral t mcs n the Anglo Egyptian Soudan. E C Kouriss

Cou tney J W Tl Temp ature a v l u ble  
Cud t D agn sis P ogn l and Surgic l  
T e tment in Cranio creb al Traumatism  
B t M - S J 9 l 5

In d agnos g c anioc ebral tr um tisms th utho cons d r the most important sign the asso ci t d t mperatu b cause of the fact that neuro l g c s mptoms ar oft n onfusing and not clear ut i p i ordem m y often caust the s m ne rolog symptom s is hemo rrh ge from the m d dle meningeal art ry and a contu ion may vary f o m the sl ht st injury to the point of rupture of th br n its l t.

In a compl t d ntracran l hemo rrhage there s immed te sho k as ocated with subnormal temp ratu c foll ed by a slight r i e of not more than on degree th t mperature usually pers sting throughout th ourse of the case. On the other hand n uncomplic ted contusion the temperature usu lly rises qui kly from subnormal to as high as 102 followed by marked r m sions of two or three d g ees in th morning to be followed again by noth r se in the even g temperature gradually oming dow to normal in favorable cases. In brain l c r tion the se is usually not so rapid but i much higher and the author cons d rs a persi tent h gh temp ature a positive and t ion of lac rated br a follo g cranio cerebral trauma m.

In consider ng th complications of intr cr al inj s b calls att tion to the chill h iel ar not uncommonly p ent in simple contus on a d do not in ny sense d note pus format o in a ch nitis they re usually absent. A sudden jump n temperature everal days after tra ma accom panied ly gns of cortical irr t at on such as delirium re tlesne s etc su lly denote a arachnitic pr ess. Tl average t mperat re may be as high s 103 with f equent often hourly fluctu tions.

The t m p ratu f a c ebral ab c s may b normal or subn m l en after th absc ss h s

developed to proportions sufficient to cause local manifestations. However this is not constant following an antecedent process the abscess may develop before the activity of this process has disappeared in which event the temperature may remain high throughout.

The author offers these facts as a practical working basis sufficiently constant to guide in the diagnosis and in prognosis and treatment. L. H. HILLS

**Derache P.** Trepanation in Cases of Gunshot Injury of the Cranial Vault. (Note sur le devenir des trepanés d'après l'observation de 15 de l'élite de la suite par le capitaine Derache). *Bull. Mem. Soc. de Ch. de P.* 97, 11, 1754.

Of 165 injuries of the cranial vault reaching the author's ambulance within a period of two years 27 died immediately without emerging from a state of coma. Of the remaining 78 cases in which surgical intervention offered some chance of success 3 died from causes not attributable to the cranial injury. In 14 cases there was a primary trepanation. These cases composed 1 closed meninges, 38 open meninges without retained intracerebral projectile, 15 open meninges with non-extracted intracerebral projectile. In the latter cases the projectile was too deeply embedded to be extracted. In the 74 cases there were 15 deaths within one month, 4 being due to cerebral abscess and 10 to meningitis.

During the following seven months there were 7 more deaths, 5 due to cerebral abscess. There were 9 cases of precocious epilepsy mostly jacksonian in type, 1 case developed a free cerebral hernia, 8 of which died. Where a hernia develops the prognosis is especially grave, particularly if there is a retained projectile. There were 52 survivals after the eighth month and there have been no further deaths. Forty of these cases date from one and one half to two and one fourth years after operation. The 52 survivals comprise 16 closed meninges, 19 open meninges without retained projectile, 15 intracerebral projectile cases. The author draws particular attention to the long tolerance of deeply embedded intracerebral projectiles.

The author gives the final mortality results with prolonged survival as follows:

In cases with closed meninges 0 per cent. in cases with open meninges and retained projectile 35.9 per cent. with intercerebral projectile 60 per cent.

Surgical treatment has resulted in prolonged survival of more than 60 per cent. of the cases operated. Neurological examination of the survivals show that in the cases with closed meninges 2.2 per cent. and in the cases with open meninges 13.3 per cent. are absolutely normal. W. A. BRENNAN

**Fracassi T.** Serous Encysted Meningitis of the Posterior Cerebral Fossa. Operation Recovery. (Meningitis serosa encistada de la fosa cerebral posterior operacion curacion). *Rev. Méd. d. Costa* 9, 1917, 11, 288.

The case reported by the author occurred in a woman of 6 years and apparently originated after

an experience of intense emotion which caused an endocranial hypertension. From the symptoms a tumor of the left posterior cerebral fossa was diagnosed the nature not specific.

A trepanation was done following Krause's technique and the dura exposed. As punctures were negative it was decided to incise the dura on the affected side. No alterations could be observed in the aspect or consistency of the cerebellar surfaces. The hemisphere was explored with the index finger. Toward the anterior face an encysted collection was opened and citrinous contents of about 20 to 30 ccm withdrawn. Suture and closure followed further exploration. The postoperative course was uneventful. All symptoms of endocranial hypertension, cephalgia, vertigo, etc. disappeared. The patient was up after fifteen days. Four months later she was seen and was in perfect health. W. A. BRENNAN

**Villandre C.** Deep Abscesses of the Brain. Secondary to Cranial Wounds. (Abscess profonds du cerveau secondaires à des plaies du crâne). *Lyon Méd.* 1917, 1, 420.

The study of three cases of previous cranial gunshot injuries with late abscess formation has shown Villandre that cellular brain abscesses set up a reactive defense process such that the infected part of a ventricle becomes completely isolated from the rest of the cavity. The lateral ventricles seem to defend themselves from slow infections as well as from very neighboring abscesses.

The three cases are striking examples of latent microbism susceptible to sudden activity in old cranio-encephalic wounds suppurated for a long time through fistulization. In one of the cases the agent was the streptococcus and in the other two the staphylococcus.

Surgical treatment in these cases being particularly difficult the author was confined to preventive and disinfecting procedures. This comprised firm drainage and repeated evacuator cerebral punctures. One of the patients died, the other two are in process of recovery.

The author draws attention to the necessity of early and thorough disinfection of cranial injuries to prevent formation of fistulae and also to the requisite supervision of such injuries for a long period. W. A. BRENNAN

**Andrews E. W.** Haemangioma of the Brain Inoperable by Ordinary Methods. Treated by Boiling Water Injections and Hot Metal Point. *S. J. C. Chicago* 1917, 1, 965.

The patient, a woman 44 years old, had well marked focal symptoms referable to the right Polandic area: papillitis, optic atrophy and slight seizures pointing unmistakably to brain tumor. There was paresis in the face, arm, hand and leg of the opposite side and progressively increasing headache and loss of vision.

The large parietal plastic flap made over the

affected area di closed a slightlv di olor l out r  
table of the skull and blui h vess ls sh ng through  
the thin bone in n unu u l vav The fr t tr phinc  
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As to the end result a mo t c s r atlv p ogno is  
is advisable F VARD L CO N L

**Roger H Influnee of Compr ssi n and Cereb al**  
**Embol on the Blood P essur** (I fl ed  
mp s t d s mbl b l u la  
p ) l l d d p P  
1917 59

Exper mental res rch on r bbits and dogs made  
by Roger lead him to conclude that ce bral embol  
produc very marked changes n the arte al  
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no change, show improvement more or less marked. The youngest patient was two and one half years of age and the oldest seventeen years.

When epilepsy is a complicating factor the prognosis is invariably bad. The immediate results were gratifying in that the convulsive seizures were less frequent but this improvement lasted only for a few months. The younger the child generally speaking the more marked has been the improvement. The older the child the less marked the improvement. In the adult cases there has been practically no improvement. Supracortical lesions are the only favorable cases in this type damage to the nerve cells is due to pressure alone from the overlying lesion. In the cortical or subcortical lesions there is naturally a definite destruction of brain tissue and only in those cells along the edges of the cyst that are suffering from pressure can any improvement be expected.

The authors make an appeal for better preventive means in avoiding this condition. First more care on the part of the obstetrician is needed. Careful pelvic measurements should be made as early as possible. Prolonged labor should be avoided when ever possible. Practitioners should realize that caesarean section is less dangerous to mother and child than is the use of the high forceps during the first few weeks of life every child should be as carefully inspected for symptoms and signs of intracranial hemorrhage as for deformities. When these symptoms and signs are present cranial decompression should be performed as early as possible in those selected cases in which the fluid or clotted blood can be removed before any or little permanent damage to the brain tissue has taken place.

In this manner the writers believe that the number of children suffering from this form of spastic paralysis can be reduced and that the most severe cases can be prevented or improved. The essential points to be emphasized are the early diagnosis and early treatment of these selected cases. Nine of these infants have been operated upon the day after birth with excellent results.

P. G. SKILLERN, JR.

**Willems and Albert. Lumbar Puncture in War Surgery.** (*La ponction lombaire en chirurgie de guerre*) Bull. I m. i. Soc. de ch. de Pa. 1917  
Jan 1918

The author thinks that lumbar puncture is not used in war surgery as much as it deserves. It has given excellent results in craniocerebral lesions and their complications.

In cranial traumatism with external wound puncture will tell whether there is only a simple concussion or a basal fracture. When there is a post traumatic syndrome of vertigo, headache, vomiting, etc. puncture will show if there is a simple hypertension or a localized compression.

In simple hypertension puncture is curative. Simple cerebral concussion is typical of this condi-

tion. A single puncture will often suffice but several may be necessitated.

In basal fracture also puncture is curative. It is the best method of decompressing the base of the brain. In severe cases the authors make a daily withdrawal of 20 to 40 ccm. They have obtained success in dangerous cases.

When jacksonian epilepsy is due to some irritating agent such as a projectile bone particle etc. and this cause can be diagnosed the only logical treatment is removal. But when the source of such complications is obscure lumbar puncture is a valuable resource. In such cases if puncture fails to bring about a successful result it is almost certain that there is a cause which must be sought by a craniotomy. The authors operate only for post traumatic epilepsy after having made a series of punctures without improvement.

For the reduction of a cerebral hernia in the early stages lumbar puncture is very efficacious. If a sufficiently large extraction of fluid is made a complete reduction of the tumor is effected even at the first attempt. But daily punctures must be repeated and it will be observed that at each treatment the tumor becomes smaller and smaller and that it will disappear after eight or ten days. If it should reappear puncture is again done.

The authors describe four cases of meningitic post traumatic complications treated by lumbar puncture. W. A. BRYMAN.

**Barany. The Open and Closed Treatment of Gunshot Brain Wounds.** (*Die offene und geschlossene Behandlung der Schussverletzungen des Gehirns*) No 4 med. i. k. St. kholm 1916 XI. 17 g. H 6 No 6.

Barany was shut up in the fortress of Przemyśl for nine months during the siege and in this time he treated more than half of the cases of brain injury that needed surgical care.

Although like others he at first was inclined toward conservative treatment and delay for the development of symptoms before operating this policy was soon abandoned in favor of early operation. In the earlier cases the greatest trouble was experienced from the development of brain abscesses after operation. This was found to be the result of imperfect drainage of the wound after an otherwise faultless operation. Many cases were lost from this cause. Jeger, Kuttner, assistant, then suggested that the American cigarette drain be tried. It was found that complete drainage was best obtained by using thin strips of gutta serena paper carefully introduced into the depths of the abscess.

By this method healing of all abscesses was obtained. While it is possible to heal brain abscesses no way has been found thus far to cope with cases of encephalitis which generally end fatally. There were only about 2 or 3 recoveries out of 120 of such cases in Przemyśl.

Barany has been led to the view that the open



method of treatment is not the only one proper in every case as he had previously maintained but that there are many cases where the closed treatment will give results and which would have resulted fatally with the open treatment.

Any summary of his conclusions is as follows:

The soft parts of the projectile trajectory are to be excised.

The brain wound is to be trimmed for about 1 cm beyond the laceration.

3. All contamination must be removed by splinting the parts to be treated and by Bonaparte's method of dressing the wound.

4. In case of serious loss of substance of the cranium, the patient should be kept in a horizontal position with the head of the upper limb the most elevated position of the wound.

5. The wound is to be closed by primary union.

6. In cerebral injury, there should be no drainage of the wound, but the patient should be kept in a horizontal position.

In some cases, the wound should be closed only after the patient has been splinted and the head of the upper limb the most elevated position of the wound.

8. For transverse wounds of the thigh, shot the same procedure as for the femur.

9. When a projectile is retained, it is to be removed when possible. For this, the position of the patient is important. The patient is to be placed in such a position that the bullet is to be in an exactly vertical downward position with the side where the bullet entered. The bullet should then fall out by force of gravity. Whether the bullet can be removed or not, the skin wound is to be closed and covered with fasciata.

W. A. BRENNAN

## NECK

W. H. A. J. A Series of Fifty Cases of Epithelial Carcinoma of the Neck Treated by Operation.

In an analysis of 50 cases of epithelial carcinoma treated by operation, W. H. A. J. makes the following deductions:

A great many of the bad results are due to errors made in selecting the type of case for operation and the time when the operation should be performed. Each case must be kept in bed and watched for a sufficient time to permit the course of the disease to be recognized, operation should be undertaken only when the symptoms are in a period of relative abeyance, taking into consideration the length of time the disease has existed and the occurrence of visceral changes, the most common of which is dilatation of the heart.

The operative technique is as follows:

The patient is referred to the hospital without any knowledge that an operation is to be performed, put to bed and kept there until the time is selected for the operation. During the period of waiting, the patient is given per rectum saline injections of one pint daily. On the day of operation, one half hour before the time selected, she is given a mixture of equal parts of olive oil and ether in place of the saline. Seven ounces of the amount usually given to an adult woman. If necessary, the ether may be pre-judged by a hypodermic injection of morphine, one fourth of a grain and atropine one half grain. The mixture is given simply to allow the patient to be taken to the operating room in an unconscious state. The ether is given on an open mask. When the patient is fully anesthetized, a sand bag is put under the shoulders to throw the thoracic glands and the shoulders of the operation is shut off by the hand of the surgeon stretched to the patient's skin. The ligation of Kocher is used. The rest must be operated upon in the gland and all bleeding must be controlled. This can only be performed by a procedure of general anesthesia on each vessel being isolated and ligatured before it is divided.

As the patient is put back to bed, the contents of the wound are removed, the remains of the operation are washed and pint of saline is injected. The patient is returned to bed until the stage of reaction is over, to four days has subsided.

W. H. A. J. divides the period of reaction into three stages:

1. The stage of reaction lasts from two to four days.

2. The stage of primary improvement lasts for two or three days.

3. The primary relapse lasts for two or three months, the first of which gradual recovery is made.

4. The stage of instability when the patient is apparently cured.

5. The complete cure.

He says that much may be done to shorten the third and fourth stages and to hasten the onset of complete cure by seeing the patient at short intervals and carefully noting the condition. It is his custom to give every patient a slip with the following printed rules which are based on those given by O'Hara:

1. Eat a quiet life and avoid all forms of excitement such as theatre shopping, politics, etc.

Obtain as much rest as possible by going to bed early and taking a mild nap.

Have an abundance of fresh air, especially at night and sleep with open windows.

Avoid all stimulants such as tea, coffee, alcohol or tobacco in any form.

Avoid meat and all meat broths and soups. At most a little beef mutton or chicken should be taken once a week or three times a week.

Take as much milk as possible and foods prepared with milk such as milk toast, cream and buttermilk.

Eat cooked vegetables frequently, cook do very ripe eggs, bread, buttered toast, rice and cereals.

Drink plenty of good water. If its purity is at all doubtful the water should be boiled before drinking. The author has had a mortality of 4 per cent among his patients. 84 per cent are able to return to work and lead normal lives. C. W. HOCHREIN.

Shambrugh G. E. Ludwig's Angina. *Surg. Cl. Chicago* 1917 1: 849

A man 20 years of age complained of swelling in the floor of the mouth and the glands of the neck, especially on the right side, together with intense pain in this region and inability to close the mouth. There was great difficulty in swallowing. The affection began with a sore throat about one week before his admission to the hospital. The swelling in the mouth was raised to the level of the lower teeth and was board-like in resistance. It was

impossible to see the faucial tonsils. The mucous membrane on the floor of the mouth as well as the sides of the tongue was covered by dry whitish exudate. There was no discoloration of the skin nor any evidence of fluctuation. The temperature ranged from 101 to 103 F. The leucocyte count was 16,350. Cultures from the mouth showed an almost pure growth of streptococci. The treatment consisted of hot moist dressings about the neck, alkaline mouth wash and morphine to reduce pain. Six days after admission pus began to ooze from an opening somewhere under the tongue. The infiltration under the tongue increased in size and hardness and on the tenth day was opened followed by the discharge of about 100 drams of thick yellow pus. Recovery was rapid.

CARL R. STEINLE

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

Chapin H. D. A Comparison Between the Clinical Examination and Roentgenograms in Diseases of the Chest. *J. Ob. Gyn.* 1917 LXVI 704

A comparison between the clinical examination and roentgenograms was made in 15 heart cases and 97 lung cases. In the former the two examinations agreed in 7 of the 15 cases, partially agreed in 1 case and 7 failed to show any correspondence in the conclusions reached by the two methods.

In regard to the lung cases there was a substantial agreement in 77 cases and a disagreement in 20 cases. Clinical examination indicated lobar and bronchopneumonia in 5 cases when the X-ray failed to show such lesions and the X-ray demonstrated lobar pneumonia in 5 cases not found by clinical examination.

The author found Espine's sign of considerable diagnostic importance in diseased conditions at the root of the lung. He states that all so-called central pneumonias are in reality peripheral pneumonias.

W. L. BROWN

Percy J. F. A Technique for Radical Cautery in Breast Cancer. *Am. Surg. Phila.* 1917 LXV 39.

Modern surgery has recognized the necessity of preventing bacterial infection of the operative field. According to the author the same principle should be observed in the operative surgery of carcinoma so that autotransplantation infection shall be prevented. The author suggests the cautery knife as a valuable substitute for the cold steel knife because it disseminates heat and heat kills the infecting organism of cancer. All tissues involved in cancer should be manipulated in the most gentle manner possible. The author has seen no untoward results from the use of heat even when large areas of the

thorax, axilla and neck were denuded of their coverings. Necrosis of the rib frequently follows the operation but it has never been seen to go below the edges of the intercostal muscles and pleura or pneumonia rarely develops. The majority of the patients are remarkably free from pain. Flaps can be made in the same way as with the ordinary knife.

The procedures in heat technique are as follows: Mark out on the iodine covered skin with the cautery knife the limits of the incision to be made. Then lift up the skin with a tenaculum forceps, push the hot knife into and under the skin and cut from within outward. Otherwise too great sloughing of the skin will result. In dissecting about the axillary vessels and brachial plexus hold the tissues that are to be removed with the free hand encased in a medium weight rubber glove, keeping the fingers close to the cautery knife. This is the most practical way of gauging the degree of heat that the blood vessels and tissues will stand without injury. Apply the heat until all the tissues that were fired by the disease are freely movable. GATEWOOD

Bevan A. D. Benign Tumors of the Breast. *Chronic Inflammations and Carcinoma.* *Surg. Cl. Chicago* 1917 1: 889

Contrary to the older teaching that benign tumors in the breast are comparatively rare and that nine tenths of the breast tumors are malignant, the author has found at least as many benign tumors as malignant. He suggests the following simple classification of tumors of the breast:

The common benign tumors come under the head of fibroadenoma and cyst adenoma. These include the Schimmelbusch tumors, the benign papilloma and the benign cysts. The rarer benign tumors are the angiomata, lipomata, chondromata, osteomata, athromata and dermoids.

The malignant tumors are carcinomata and sarcomata. Sarcoma of the breast in the author's experience is a comparatively rare neoplasm. Fibroid and cyst adenomatous and carcinomatous form more than 95 per cent of the breast tumors coming to his care.

The differential diagnosis is discussed and also tuberculosis, syphilis and chronic abscesses in the breast. Three cases are reported: one a simple cyst, one a fibroid adenoma and the third a Schimmelbusch tumor.

When multiple abscesses and fistulae of the breast are handled by simple incision and the introduction of drainage tubes they very often become chronic and are not cured. Practically all can be cured by a thorough operation under a general anæsthetic opening up all the abscess cavities and scraping out the fistulous tracts. Drainage tube should not be introduced but moist dressings under a very firm compression bandage should be applied.

Flat sea sponges are compressed to one fourth of an inch in thickness and applied under the bandage. They are moistened with boracic solution. This exerts an even well distributed pressure over the breast. EDWARD I. C.

**Paque R. Two Cases of Immature Thoracicotomy for Thoracic Abdominal Wounds (Differential Diagnosis of Thoracic Wounds)**  
th c t m m m d at p pl th l d m  
1 ) B H t f S d f d P 9

The first case reported by Iiquis was a man with an oblique wound the size of a fistula situated about 4 cm. to the left of the right nipple. Radio copy showed a foreign body in the neighborhood of the diaphragm. A Delorme flap was made without fracture of the ribs and the abundant hemothorax was evacuated. Small perforation found in the inferior lobe of the lung were not sutured. The liver dome perforated the foreign body was extracted from the hepatic parenchyma. Recovery followed.

In the second case a lumbothoracic perforating wound at the right side traversed the diaphragm. The projectile was in the superior lobe of the lung. Operation was done as in the preceding case and the projectile extracted. The projectile had in this case traversed the diaphragm and all the inferior lobe of the lung. The perforation in the inferior lobe was not treated. The man died on the seventh day of pleuropulmonary septicæmia.

This case illustrates the importance of dissecting the whole of the track of the projectile. Autopsy showed that the upper part of the track had cicatrized well after extraction and suture but that the lower part which was not treated was the starting point of a fatal pleuropulmonary septicæmia. W. A. B. VAN

**Lillenthal H. Empyema of the Thorax**  
S g Ihl 971 9

The author reports his observation of one hundred cases of empyema of the thorax treated by major

and minor thoracotomy over a period of three years from March 1914 to March 5 1917. These cases were operated upon regardless of the prognosis and regardless of the source of the pus. There were 64 cases under twelve and 36 over twelve years of age and about twice as many males as females. The mortality was 23 per cent showing a 5 per cent improvement over the cases treated during the ten years previously reported. No thoracoplasty operation as done in any of these cases. Those patients who recovered remained in the hospital about thirty seven days on an average. This represents a gain of one week over past records. E. B. F. E. ICH

**Ritt H. M. Empyema Simple Interrupted and Continuous Aspiration of the Pleural Cavity**  
006

The former attributes the high mortality of empyema in children to the following three factors:

1. The toxication of the uppiration.  
The loss of potential material from prolonged suppuration.

3. The collapse of the lung.  
Death may result from these factors after any drainage operation but the first can more readily be controlled by some form of drainage. The simplest form of treatment is the removal of the greater part of the pus by repeated interrupted aspirations and complete evacuation of a pleural effusion of any considerable extent essentially wrong. In draining the pleural space attempts to obliterate the pleural cavity as quickly as possible by draining the lung up to the chest wall and this is best accomplished by one of the modifications of the method of intermittent aspiration. By its means the lung can be kept fully inflated and complete obliteration of the pleural space will quickly ensue. In this way the fluid from the broad surface of the large suppurating pleural cavity can be reduced. F. B. FR. LICHT

**Walsh H. L. Antineoplastic Medicated as a Cause of Hemorrhage**  
of Hemorrhage L. I. L. D. 97 495

After a massive gunshot wound of the neck resulting in a gangrenous cavity which in less than a month of time had become a most fatal one both anterior and posteriorly the possible causes of death are considered hemorrhage, epistaxis and septic pneumonia. In a second case following a gunshot wound of the neck the patient died of a retropharyngeal infection. A drainage here is easily but not a downward and the thorax is more difficult.

A third type of case presents an interesting wound anywhere about the neck with no sign of local reaction or inflammation consistent with increasing difficulty in allowing free breathing. Stereoscopic check photography of a foreign body very deeply placed in the neck than 48 hours the pleural respiration rate is decreased alarmingly. Adequate surgical drainage and cardiac stimulants are unavailing and in a day or two without the appearance

ance of illness the patient dies. The cause of death cannot be assigned to shock, septicæmia nor heart failure.

The author cites three such cases in which autopsy showed a deep abscess or purulent lymph involving both vagi.

In general the temperature is very irregular. It may rise to 104 and again fall. It may remain high or normal for an hour or for two days. The most characteristic feature is the sudden alteration of pulse and respiration rate. This startling alteration especially if accompanied by an altered size or mobility of one or both pupils indicating involvement of the sympathetic forms a symptom complex. The diagnosis is vagitis due to mediastinitis.

As regards treatment cardiac stimulants are of no avail. Surgical cleansing of the wound down to the spine is no safeguard. In the after treatment of very deep wounds in the neighborhood of the thoracic inlet posture seems important. The patient should lie if not on his face at least semi-prone on the affected side with the head low. But with the acceleration of pulse and respiration orthopnea is persistent and it is not possible to keep the patient lying down. The anatomical difficulties of good surgical drainage at the thoracic inlet are great. V. C. HUNT

### TRACHEA AND LUNGS

Iglauer S. Foreign Bodies in the Bronchi. *Ist Med J.* 97. xxiv. 924.

The author reports two unusual bronchoscopic cases with special instruments used in extraction and a case of spontaneous expulsion of an upholstery tack from the right bronchus.

A boy aged six years swallowed a steel jacketed bullet and was taken to the hospital three days later. The physical findings and roentgenogram indicated complete obstruction of the left bronchus. A Kahler bronchoscope was introduced but it was impossible to grasp the foreign body with the ordinary forceps and so a flexible forceps was employed and the bullet withdrawn. It was 25 mm long and 7 mm wide. The use of a flexible forceps has some advantages when the tactile sense is employed in extraction since there is but slight danger of traumatizing the tissues with such an instrument.

The second bronchoscopic case was that of a boy aged 12 years who swallowed an umbrella ferrule. The physical findings and roentgenogram indicated that although the foreign body was a large one a by-pass for air could be diagnosed. A Kahler bronchoscope was passed and a thumb like body with its wide end uppermost was located firmly impacted in the right bronchus. The first attempt at removal of the foreign body was unsuccessful because the various kinds of forceps which were repeatedly applied slipped off and traction seemed to tilt the foreign body and draw its sharp edge into the opposite bronchial wall. The operation was discontinued pending the manufacture of a special

extractor. This consisted of a long brass rod with a tapering screw thread at one end which was intended to be screwed into the hole in the end of the foreign body on the principle of a bolt and nut. On the following day a low tracheotomy was made under local anesthesia to obviate the possibility of the foreign body becoming dislodged and fixed crosswise at the tracheal bifurcation or stripped off below the vocal chords. A short 9 mm Jackson bronchoscope was introduced and the foreign body located. The special extractor was then screwed into the hole in the foreign body which was easily withdrawn until the tracheal opening was reached when it was stripped off. It was immediately seized with a forceps and extracted. It was 15 mm long and 10 mm in its widest diameter.

The third case was that of a little girl aged six years who swallowed an upholstery tack. She was taken at once to the hospital where a roentgenogram showed the tack lodged head downward in the right bronchus opposite the fourth rib posteriorly. The child was given 1/200 of 1 grain of atropine and sent to the operating room but the operation was postponed for a short time until a suitable forceps could be obtained. Soon afterward the child coughed up the tack. Factors favoring spontaneous expulsion were the short sojourn, i.e. three or four hours of the foreign body, the rest in bed and the administration of atropine which possibly relieved the spasm of the bronchus. The tack proved to have but a moderately sharp point. E. B. FREILICH

Jackson C. Caisson Bronchoscopy in a Lung Abscess Due to a Foreign Body. *Surg. Gynec. & Obst.* 1917. xvi. 44.

The author reports a case of a pin in the lung which had been swallowed five years before. Caisson bronchoscopy was used in its removal. The author concludes that while caisson bronchoscopy was unsuccessful in finding the foreign body in this case the usefulness of the method in the exploration of the interior of the lung abscess and the safety of such exploration were demonstrated. It seems probable that a larger foreign body or one not in an eccentrically located pocket could be so found.

The new malleable ended forceps are useful in conjunction with localizing roentgenograms made with ordinary straight forceps in position at endoscopically known stations.

Numerous other points though not entirely new are important especially (a) the absence of reaction following careful bronchoscopy under local anesthesia in adults (b) the absorption of less pus owing to improved drainage following dilatation of the strictured orifice of the abscess cavity (c) the corrosion of steel in the lung without disintegration sufficient to permit coughing out probably because of the firm enclosure of fibrous tissue (d) the localizing value of the anteroposterior and lateral roentgenograms with the bronchoscope and forceps at various stations of which the endoscopic landmarks are known. H. H. FREILICH

Takenska S. The M. cro cop. and M. c scop c  
 Finding in the Ling. alt. Unilateral Remo al  
 (U b m k l p h u l m k k o p h  
 B f d d L g l n t g L t p t )  
 M u d d P k h d k L T k 97  
 139

The author reports the primary performed on rabbits and dogs. From his findings draws the following conclusions:

1. Removal of the lung on the dead animal to the lung of the other lung. The lung mass is not noticeably changed. It is distinctly visible after a few months.

It is observed that the loss of the remaining lung did not in the beginning of the lung volume irregularly. It all the volume of uniform size.

An increase in weight of the right lung in the lung of the heart. The increase in the heart of the lung found the right side.

4. The enlargement of the lung probably due to the formation of alveoli in the bronchial branches.

5. Fronds and Moellgard the results regarding occurrence of emphysema are not verified. Bohr's theory has more validity than the author's opinion.

6. The relative position of the thoracic organs is only very moderately influenced by the removal of one of the lungs. The remaining lung the heart and the organs. The mediastinal space maintains its normal position. Nor is the costal pleura not ed a compensatory high displacement of the diaphragm. The heart all the time on the operated side.

As the lymphatic vessels apply to the remaining lung on the right side. The unilateral lymphatic drainage. The lymphatic drainage is gradually established. W A B V A

## HEART AND VASCULAR SYSTEM

Deale. The Case of Cardiac Perforation (N. t. t. s. d. l. p. j. t. l. d. q. ) B. l. l. t. t. s. d. l. p. j. t. l. d. q. ) 59

Derach reports three cases in which the retracted a cardiac projectile successfully.

In two of the subjects the projectile was a rifle bullet in one case embedded in the posterior wall of the left ventricle behind the apex and in the other case resting on the left auricle. In the third case the projectile as a piece of shell lodged in the posterior wall of the left ventricle under the auriculoventricular ridge. W A B

Delorme. E. Contribution to the Study of Cardiac Surgery (C. t. n. b. t. l. t. u. d. e. l. h. g. d. a. l. e. ) B. l. A. d. d. E. l. P. 917. l. 43

The case reported by Delbet to which Delorme refers was that of a soldier in which radiologic and stereoscopic examination showed a projectile situated in the right heart. The Delorme thoracic flap was practiced the fifth rib fractured and the

pericardium detached with the finger. When the heart was reached the right edge was incised for about 3 cm and the foreign body in the cavity of the right ventricle was moved by pressure of the fingers toward the opening whence it was extracted by Kocher forceps. The index finger and the thumb kept the lips of the wound tight so that only a few drops of blood escaped. With Chaput's antisthenic and No. 10 catgut a few non-perforating sutures were then rapidly placed. The wound was closed and dressed. The projectile was found to be an irregular bar of steel one side of which measured about 1 cm.

The patient lived three quarters of an hour. Recovery followed. General aortic stethoscopic examination on the 18 day after operation showed symptoms of pleuropericardial symphysis tachycardia with instability of pulse. Absence of arrhythmia. No regression of the oculocardiac reflex and diminution of the respiration.

Delbet concludes from his operation that the projectile is extremely simple and without any anatomical indications. With regard to this case Delorme reviews 17 cases of intervention reported in French literature for intracardiac projectiles. He gives short summaries of these cases. 3 were for the bodies in the right lobe, 1 in the left lobe, 2 in the left ventricle, 3 in the right ventricle and 3 in the apex. A distinction is made between partial and a total rupture of the bodies. The case reported by Delbet is of the latter kind.

Delorme records the following indications for delamination:

1. When the rupture is persistent pain is disturbed sleep and extreme pain with violent palpitation in the left ventricle. No operation is clearly indicated whether or not the projectile penetrates and whether it is pericardial or cavitory.

If the disturbance is slight and the projectile partial the indications are rather against intervention. A small foreign body can become lodged and remain harmless indefinitely.

3. If the bullet is in the left lobe the projectile is situated in the left lobe should not be interfered with if the projectile is regular it may be left where it sits but if irregular it should be removed. Intervention called for.

Regarding the effects of such operations the known findings are good and seem to favor intervention. Of a total of 13 operations made in France there have been 3 deaths. Four operations made for foreign bodies in the right ventricle have all resulted successfully. W A B V A N

## PHARYNX AND OESOPHAGUS

Hymel. Treatment of Perforating Chest Wounds at the Front (N. t. l. t. t. m. l. d. p. l. s. p. t. d. e. p. t. a. l. t. ) P. l. d. 9. p. 627

Since April 1917 the author has treated 5 wounds of the lung and mediastinum resulting from

directly from the first aid posts. Within the first twenty four hours after injury he operated upon (a) penetrating wounds with a single entrance orifice and with a large projectile or one which menaces a large vessel (b) wounds with a large thoracic breach. He has never had to operate on account of hæmorrhage. Cases which do not result in immediate death from hæmorrhage usually develop a hæmothorax which the author has respected for at least twenty four hours on account of the spontaneous hæmostasis.

In all other cases abstention has been the rule. In seton wounds or single orifice wounds with a very small projectile. Twenty three such cases cured spontaneously and were evacuated between the thirtieth and fortieth days. In 4 cases the projectile though small was troublesome and a secondary operation was necessary. Such interventions are very difficult on account of adhesions and pleural suppuration usually occurs. For such reasons the author has decided to operate in all cases except those involving extremely small projectiles.

The author's experience leads him to adopt resection of the fourth rib as the approach of choice. As an approach to the mediastinum the lung the pleural cul de sac or for dissection of the hilus region this resection gives a sufficiently large opening to view the conditions from the pleural dome to

the diaphragm and from the sternum to the vertebral column. Besides permitting rapid and easy intervention there is a minimum of operative injury.

The skin and muscle incision is made about 3 cm beneath the fourth rib and parallel to the course of the rib. The muscular cutaneous layer up to the fourth rib is then lifted up. After resection of the rib the pleura is incised for the whole length of the wound. The intercostal muscles are also incised for about 2 cm at their insertion in the superior edge of the costal cartilage corresponding to the resected rib. The cartilage is not resected.

The pneumothorax produced which completes a preceding incomplete one has never caused any cardiac or respiratory disturbances.

The author describes his treatment of the lesion according to the situation of the projectile to be extracted whether in the pulmonary parenchyma in the mediastinum or in the pleura.

The results show that 42 per cent had an immediate operation 44 per cent benefited definitely by abstention. There were 8 deaths and mortality of 16 per cent but most of these were in patients with the thorax largely opened by the trauma. The author thinks that while abstention is a beneficial procedure in penetrating chest wounds when its indications are limited thoracic surgery gives excellent results.

W. A. BRENNAN

## SURGERY OF THE ABDOMEN

### ABDOMINAL WALL AND PERITONEUM

Hull, A. J. The Cure of Inguinal Hernia. *Brit J* 1911 518

Hull has charge of a special department of the British medical service for the cure of herniæ dealing with cases at the rate of about 500 per year. The high percentage of soldiers who have inguinal hernia has made the problem of their treatment a serious one. Trusses are almost useless. The operation of choice is the one which will cure the hernia and render the man fit for service in the least possible time. The principle of the operation best adapted to this end and found highly satisfactory is the removal of the sac at the highest possible level with a minimum disturbance of tissues.

The technique is as follows. One half per cent novocaine (with adrenalin) is infiltrated midway between the anterior superior spine and the pubic spine and one half inch above Poupart's ligament. The whole anæsthesia is conducted through this puncture without withdrawing the needle. Incisions are made one half to one inch in length over the needle puncture down to the aponeurosis of the external oblique. Fibers of the external oblique are split one half inch. Cremasteric and spermatic fascial coverings of cord are drawn through the aperture the cremasteric fibers are separated and

the spermatic fascia incised. The sac lying inside these coverings is opened between mosquito forceps. Omentum if present is drawn out ligated and cut off. The inside of the sac presents two apertures the internal ring and the inguinal canal. The two openings are separated by a fold of peritoneum the crista corresponding to the inner margin of the internal ring. Forceps are placed on the crista and the tube of peritoneum leading into the abdomen is separated by cutting through this fold. The neck of this tube or sac is now pulled out gently and ligated as high as possible which is about two inches above the internal ring. When the sac is cut distal to the ligature the elasticity of the peritoneum will displace the ligatured sac well behind the rectus muscle.

In 90 per cent of the cases this is all that is necessary. The skin incision is sutured with silk worm passing down to and including edges of the external oblique. In cases in which a large internal ring or a very thin peritoneum renders recurrence more possible the conjoined tendon is drawn over the cord and sutured to Poupart's ligament without enlarging the incision. By enlarging the incision in the external oblique a typical Bassini may be done.

Recurrence is usually immediately after the patient gets up and is due to faulty ligature of the sac.

Troublesome quæ such as hydrocele r traction of the testicle th laking of the cord neuroalg etc lue to injury of the permat c c rd ar avo ded The operation is perform i bo the att d scar of r cu nt hern æ almo t sily as if primary  
(C L A HED LOW

### GASTRO INTESTINAL TRACT

Thall mer W and Wilen ky A O Tl Extent of T ue to be E c sed for A R dical Rem al of Ca noma of th Stomach i S g Phl 971 4

The author i vest g tion a m l c for th purpos of determining th minimum amount of tissue adj cent to m ll r nom t of th stomach wall which must l ted o d to secure a complete operat r mo al f th mal g nant p oc s in th ase in l h the reg n l lymph nodes appar ntly n t l l nd in hich th re are o d monstrabl m tase

From the r e d n e th y conclud th t in small carcinomata of the toma b stuat d l whe than at the pylorus the m l g nant proc ss is o limit d in x tent that local resection at a d stance from one to t o cent meters beyo d th macroscopic limits of the tumor ill n the majority f instanc s remo e the ent tumor

The author i sh t under tood that t m t not be assumed from the obs rv tions that the accepted methods of surgical tr tment of c r nom i of the stomach su h s pylorctomy or p t l gastrectomy are not e ssary f a thorough removal al of the dise d t s They mph sizc the fact that such meth l slo d be employ d wherever possible

The clinical signif nc of tl r i c tigation i two fold

Inasmuch s the surgeo freq ntly mak local excision of an ulc r in the belief that the latter is benign in character th s i vest g tions show that such a lo l e cision suffi t for radical removal of the malignant process even f subsequent pathologic al ram tion sho s the ulcer to ha e been ca cinom tous n chara t r Of course such a local x cision would be r dical only i hen metastat c glan lular nvol ment not present

When a malignant tumor is s tuated at th card c end of the stomach the surgeon may eith r do a complete gastrectomy or cons d r these cases in operable The serous consideration of complete gastrectomy is almost forb dden in these cases becau e of the high mortality of this operat on Local e cision of the tumor is a far less d ngeous procedure and since the autho s investigat ons have shown that such local exc on is suffic nt for the removal of the malign nt proc s the e tumors become access ble for rad cal oper tive treatment Such exc sion aga n i only radical pro v ded no metastases a e present

G W HOCHREIN

W bb R C Operative Treatment of H Gl s  
Stom cl l S g Phl 971 48

Webb r ports a case of hour glass stomach d c to an ulcer in h ch the pyloric pouch was three times as l g the cardiac pouch The pylorus was obstructed by a la ge c llus apparently a cicatrized ul r A doubl posterior gastro enterostomy was pe form d without an entero tomy b t v en the t o lo p T o month after operation the p t e t is f tr m symptoms a d h d gained th rty two pound A rry p ctu s tak n at this time sho ed that th tom h mpted rapidly and both g stro-enter tomy op i gs re vorki g well

G W HOCHREIN

Wolk ff A A and Klopfer F E G stric D ges  
tl n f Various Fo d tufts Afte G tro  
Fnt t my L l L d 97 568

In xpcrim nts on logs the authors fou d that ith th pylr s open food left the stomach both through the pylo us nd the an stomot c opening The most liquid part of the food came through the pyl ru hile th more sol d constituents came through th n stomosis H J VAN DER BE G

P lm r D W Hyp plastic Pyl ic Stenosi t  
S e Thl 9 l 48

Palm off rs four re sons for pr senti th s by t First h belie es th s co dition has been i d fr qu ntly ov rlooked s cond he hes to bring o t om of the essential features in the i gnosi th d h whes to comment on some of the gic l f ture nd compl cations a d fourth h des t mphr e the f ct that xcellent ults re obta n d by su gical ntervention with comp rativ ly slight risk

He b lie s that all cases of co genital pylor c obstruction h a const nt pathology that r sts on far more t ngible b sis than any sp sm theory He po ts out the similarity of the obstruct symptoms produced by prostate obstruction and ig nital pyloric hyp rplasia to p o e the inability of p sm alone to produce th syndrome ocia d th the latter co dition H believes th t th a l m a f om i c ased muscular effort or f ld of muco s m mb ne or a curd of milk may b the factor to clo e a pylorus rly rdy nar roved by too great an amou t of sphincter muscle

A l ge majority of the cases are first bor males br ast f d nd perfe tly w ll t b rth with healthy par nt Tl appea ance of symptoms dep nd on the am nt of hype pl s r of the pylor s In a per nt ge of ll cases ven where the obstr c tion is most ut it is impossible t p l pte the pylo ic tumor b c u e of the ov rh ngi g liver or th po ter position of the pylorus If the tum r is palpabl it v rite the d g sis but if n t it by no means m k s neg tive the diagnos s The tumor often b comes palpable after th p tient i anæsthetized Some c ses r qu re mmed ate surgical operat on and others v lue to medical tre tment All cases should be carefully w tched

The vomiting of a simple gastric or gastro intestinal disturbance intestinal colic and other forms of obstruction and injuries from various foods must be differentiated. One of the author's cases operated for pyloric stenosis proved to be a case of infantile myrcism or rumination.

He brings out the fact that pyloric stenosis has associated with it an unduly high percentage of cases of thymus enlargement. Another less serious complication is a postoperative discharge from the skin wound.

The average age of his eight living operated cases was seven and two fifths months at the time last heard from and the average weight was seventeen and two fifths pounds or one pound above the normal Holt average. G W HOCHREIN

**Downes W A A Case of Giant Duodenum** 1  
*Surg Phila* 1911 1:1 436

Downes reports a case of giant duodenum in a child of four and one half years. The child weighed 6 pounds at birth and 9 pounds on admission to the hospital. He had had frequent fits of vomiting since birth with periods of one to two months freedom.

At operation the stomach appeared normal with possibly a slight thickening of the wall, the pylorus was normal and the duodenum was dilated to the size of the stomach. The wall was smooth and three or four times thicker than normal. No diverticula adhesions or peritoneal bands were present. Distention involved the entire length of the duodenum ending abruptly at the point where the gut passed under the superior mesenteric artery. No effort was made to determine the nature or cause of stenosis. The usual posterior gastro enterostomy was performed.

One month after operation the patient was readmitted to the hospital almost in collapse with distended abdomen and subnormal temperature. The abdomen was reopened. It was found that the ligature had cut partially through and that there was a free communication between the stomach and duodenum. A new ligature was applied. The child improved for the first forty eight hours following operation and then began to complain of pain in the epigastric region at the same time a slowly forming mass could be felt in the right upper quadrant. On the fifth day after repeated enemas and the use of pituitrin the bowels began to move freely and the child continued to improve. There was no return of the symptoms.

The author believes that duodenojejunostomy best meets the indications in the giant type of duodenal dilatation and should have been adopted in his own case. G W HOCHREIN

**McKenna H A Case of Perforated Duodenal Ulcer** *St g Clin Ch c g* 1911 1:1063

Etologically duodenal ulcers have a definite relation to focal infections such as are found in the

mouth ears sinuses etc. They are hæmatogenous in nature as in appendicitis. The author reports a very interesting case of acute appendicitis following an attack of streptococcic tonsillitis in which the same organism was recovered from the tonsils and the appendix.

In diagnosis much dependence is placed on the history and the X ray findings. History is typical as to periodicity the attacks usually occurring in autumn and spring. Hunger pain particularly at night vomiting and rapid gastric peristalsis are generally present.

All cases of ulcer of the pylorus and duodenum with constriction should be handled surgically and a gastro enterostomy made. In all cases where the ulcer is not removed the scar should be covered by means of a purse string suture or a flap of omentum. Surgical treatment is imperative in cases of ruptured ulcer.

In the case of perforated ulcer reported by the author there was a sudden onset of pain of such severity that the patient fell practically unconscious. Two hours afterward on arrival at the hospital he was semi comatose very anæmic and suffering extreme pain in the upper abdomen. The right side of the abdomen was rigid there was no blood in the vomitus. White blood count was 14,000. A right rectus incision was made. The perforation was found in the duodenum it was closed with Lembert sutures in such a way as to increase the lumen of the duodenum. A pedicled flap of omentum then covered the line of sutures.

The patient made an uneventful recovery.  
C A BOWERS

**Jopson J H Intussusception in an Infant** *Re section Recovery Ann St g Phila* 1917 1:11500

Jopson reports the case of an infant seven months old who developed colic after a bowel movement followed by persistent vomiting not fecal.

The abdomen was soft and scaphoid but not tender. A visible and palpable oblong tumor two by three and one half inches was found in the lower portion in a median line below the umbilicus. Rectal examination disclosed no tumor but blood and mucus were voided. There was no bowel movement after the attack. The temperature was 100.6 the pulse 132 and respiration 38.

At operation intussusception of the small bowel was found. Rectification was attempted but a constriction at the upper portion of the bowel made it impossible. The bowel was resected and a Murphy button used in an end to end anastomosis. On the sixth day the abdominal incision opened and a few coils of intestine protruded. Under chloroform anesthesia the coils were replaced drainage instituted and after a vacillating convalescence the child recovered and at this time is eighteen months old. The operation involved the removal of more than fifteen cm. of the intestine.

M A BRNSTEIN



Decusatis H. and De Grost E. Chronic Intestinal Occlusion by Adherent Hernia (Occlusion of the right iliocecal junction) S. M. 97 32

The patient was a woman of forty nine who showed a tumor diagnosed as a right crural strangulated hernia on the left side as another crural hernia which was apparently reducible. The patient had symptoms of intestinal obstruction. She was operated upon and about 6 cm of the large intestine resected and joined by an end to end anastomosis. The patient made a successful recovery.

This case is interesting because of the symptomatology of chronic intestinal occlusion due to left adherent irreducible crural hernia and also an acute occlusion by the strangulation of the patient's right crural hernia. Operation and histological examination showed that there was hypertrophy of the descending colon by a partial obstruction of the intestinal lumen, this hypertrophy being purely functional in origin. W. A. BREL 4

Harrington A. H. Torsion and Inflammation of the Appendiceal Epiploca of the Sigmoid Flexure 97 467

These hitherto neglected anatomical structures may be the seat of pathological conditions which can simulate an acute abdominal lesion. In the case reported by the author the onset was sudden. The principal symptom was severe pain in the right lower quadrant. A diagnosis of acute appendicitis was made but after the appendectomy was found not inflamed search was made for other conditions sufficient to give rise to the symptoms. At the middle of the convexity of the sigmoid flexure epiploca was found acutely inflamed and was removed.

The article concludes with a complete review of all of the published cases of disease of the appendiceal epiploca. D. N. EISENBERG 4

McKenna H. E. Early Recognition and Treatment of Acute Appendicitis. S. G. C. Ch. 9 1169

The author emphasizes the necessity for a campaign of education as regards the early recognition of acute appendicitis. He cites several cases where the diagnosis was overlooked and procedure undertaken which were distinctly harmful to the patient.

The symptoms of acute appendicitis and the order of occurrence are:

1. Pain usually epigastric and cramp-like in nature shifting to the right lower quadrant in twenty-four hours.

2. Nausea and vomiting probably due to traction upon the appendix and mesoappendix.

3. Rise in temperature usually occurring in the first twenty-four hours.

4. Leucocytosis. A differential count should be made to see if there is a relative polymorphonuclear leucocytosis.

Differential diagnosis will exclude:

1. Ruptured tubal pregnancy marked by cessation of menstruation, sudden severe pain in the lower abdomen, abdominal tenderness, anemia, nausea and vomiting, rapid pulse, subnormal temperature, increase in leukocyte count.

2. Acute gallbladder marked by acute pain in the upper right quadrant radiating around the right costal arch to the back and sometimes to the right shoulder, vomiting, no icterus, jaundice.

3. Volvulus of the sigmoid marked by sudden onset of agonizing epigastric pain and persistent vomiting, severe collapse, weak and rapid pulse, belching and hemorrhagic distention of the upper abdomen and cutaneous anemia. Sugar may be found in the urine.

4. Stone or dislocation of the right ureter or kidney, marked by sharp pains in the bladder and penis and in the right leg. Blood or pus may be found in the urine. Urteral catheterization with X-ray may verify the diagnosis. The Murphy hammer stroke will elicit pain in the region of the kidney.

There is practically never a fatality if the patient is operated upon within the first twenty-four hours. In upper typhoid cases the appendix is removed if it is not inflamed but it is not disturbed if by doing so there is danger of disseminating the infection. C. A. BOYER 4

Jackon W. R. Megacolon. Megacystitis. 4 441

Jackon reports a case of megacolon in a male 7 years of age. For two years before operation he had distressing constipation and great abdominal distention especially in the upper abdomen which strong pressure failed to relieve.

Operation revealed all the colon to be moderately dilated and the sigmoid was dilated for its entire length. The shape of the stomach measured 18 inches in circumference and about half filled with fecal matter. The walls were thick and white in appearance. Excision of the whole sigmoid and the dilated segment was done between two clamps and an end to end anastomosis by suture was made. The patient made a normal recovery. Two months after operation his condition was good and he had gained 15 pounds in weight. His appetite and digestion were normal.

The author states that the prognosis is grave in most cases although the operation has a more recently the operative statistics have improved considerably. G. W. HODGE 4

## LIVER, PANCREAS AND SPLEEN

Sullivan A. and Burt and I. M. Ryan. A Case of the Liver in a Girl of Fifteen Years (Ultracystic Liver). J. P. M. D. 1 47

There are only a few cases known of primary cancer of the liver in infancy and this rare under the

thirtieth year The author relates the detail of a case of primary epithelioma with a syndrome simulating an attack of appendicitis The patient was a girl of eleven years who was finally sent to the hospital with a diagnosis of liver abscess An operation of urgency was performed and the liver exposed and examined without any positive findings The child died 8 days later Autopsy showed the liver vastly enlarged and on its superior and posterior face a knobby whitish tumor His tologic examination showed that the tumor was an epithelioma and its character showed that it was primary There were no metastases

W A BRENNAN

Dennis W A Acute Empyema of the Gall Bladder *J Lancet* 1917 xxxvii 595

The author's records for the past two years show that 20 per cent of gall bladder cases were operated upon for acute empyema

When a stone becomes impacted in the cystic duct a condition of hydrops of the gall bladder develops the gall bladder containing clear mucus and no bile When a stone becomes impacted in the pelvis of the gall bladder hydrops does not develop but in all cases of empyema this was found to be the location of the impacted stone In explanation of this it is thought that because of the anatomical relations of the cystic duct and the cystic artery a stone impacted in the pelvis of the gall bladder produces pressure upon the cystic artery interfering with the blood supply to the organ lowering its resistance and rendering conditions more favorable for the development of an empyema When the stone is impacted in the cystic duct there is no pressure on the cystic artery

In acute empyema of the gall bladder there is typical colic the pain persisting for several days ameliorated by morphine but not completely relieved Fever appears not infrequently accompanied by chills Jaundice is usually not present The gall bladder is usually easily palpated in the absence of Riedel's lobe Tenderness is a definite sign An empyemic gall bladder by adhesions and ulceration at times empties a part of its contents into the bowel

Surgical treatment is indicated as soon as the diagnosis is made if the patient's condition warrants it Where there is acute toxæmia proctoclysis with bicarbonate of soda and glucose for a few hours allows operation to be undertaken with comparative safety Delay should not be too great as rupture of the gall bladder may occur

The operation of choice for empyema is cholecystectomy for several reasons i.e. lesser dangers of wound infection certainty of not leaving an overlooked stone impacted in the pelvis the avoidance of a second operation more prompt and safe recovery The chief contra indication for cholecystectomy is a general condition so bad that an anæsthetic is unwarranted in which case simple drainage under local anæsthesia can be done With

a co existing stone in the common duct the stone may be removed and then cholecystectomy done

V C HUNT

Leede C S The Physiology of the Gall Bladder Under Normal and Morbid Conditions *Norrlæst Med* 1917 xvi 298

The author attempts to solve the problem of when to drain and when to remove the gall bladder He has determined that the normal bile found in the gall bladder is six to ten times richer in solids than bile found in the bile ducts In other words 40 ccm of normal gall bladder bile is equivalent to from 240 to 400 ccm of bile duct bile By reason of absorption of the inorganic salts by the gall bladder a change in the bile is produced which makes the gall bladder bile less destructive when injected into the tissues than the liver bile The mucus of the gall bladder also produces large amounts of mucus which possibly serve as a protection to the duodenum against the action of HCl

He also believes that in all probability although he has been unable to prove it definitely there is a hormone secreted by the gall bladder into the bile which has a great influence upon the production of HCl in the stomach and thereby of secretin in the duodenum The bile ducts and gall bladder with the sphincter muscle of the choledochus are supplied by the splanchnic and vagus nerve The existence of the sphincter muscle has been recently demonstrated by Rost Irritation of the splanchnic nerve causes dilatation of the gall bladder and bile ducts and possibly contraction of the choledochus sphincter muscle while irritation of the vagus nerve causes contraction of the gall bladder and bile ducts and relaxation of the sphincter muscle the sphincter thus regulating the flow of bile

The first morsels of food taken into the stomach cause the gall bladder to eject some of its thick bile into the duodenum where its hormone causes the secretion of HCl in the stomach Food alone does not cause HCl to be secreted As soon as the HCl enters the duodenum the mucosa of this organ causes the production of secretin which is absorbed and acts upon the liver and pancreatic cells causing a production of the respective juices Meat and the products of protein digestion therefore because of the increased amount of HCl produced which again produces more secretin have the greatest influence upon the production of bile Fats influence the bile production to a lesser degree and water and carbohydrates hardly at all Milk causes a strong flow of bile of long duration Bile and bile salts either taken by mouth or injected directly into the duodenum cause a strong flow of bile and are therefore the greatest chologogues

Reach showed that morphine adrenalin and pilocarpine cause a contraction of the sphincter choledochi papaverine relaxing the sphincter and releasing the bile without increase in quantity Carlsbad sprudel causes decrease in bile salicylates increasing the flow The so called chologogues

mercury and phosphate has no immediate effect upon bile production. The author reasons therefore that the real chologogues are the food and digestives which cause the increased production of secretin and with it the increased production of bile and pancreatic juices. With reference to pancreatic secretion the author has found that normal production of acid of the stomach is the controlling factor in the action of the pancreas. Merits are a strong flow of juices but he did not find carbohydrates are the most powerful stimuli.

It is found that normal secretion of bile is dependent only on the amount of bile acid present in the juice of normal normal. Although the normal contents of the stomach are not reduced, the bile does not flow into the stomach. The production of bile is not dependent on the reduction of HCl. The chemistry of normal dog contains a normal amount of HCl does not increase the production of bile to normal. The dog without a gall bladder it is obvious from this that with the loss of the gall bladder something else is lost probably the hormone.

Only of Cassel found that the loss of function of the gall bladder 70 to 80 percent of the cases showed anacidity and a hyaline gastritis. In a series of 31 cases of this type 7 percent showed a lack of free HCl 7 percent showed free HCl below twenty and 1 percent normal HCl. In another series of 4 cases in which there was occlusion of the cystic duct or contraction of the gall bladder it was found 84 percent showed no free HCl 14 percent free subnormal and 2 percent normal. In 16 cholecystitis cases without cystic occlusion 3 showed anacidity and the other 3 subacidity. The dog experiment corroborated the findings. The author reasons that a condition which brings about the loss of function of the gall bladder disturbs the secretion of HCl. The normal conditions are troublesome to the patient.

Just demonstrated on dogs that in those cases in which the bile ducts had become contracted the muscle fibers of the pylorus were well developed and of the cases in which the bile ducts were not contracted this muscle was very poorly developed. It is very probable that the patient in which no stomach distention appears the bile ducts have become contracted and are preventing thereby the constant dripping of bile into the duodenum with its associated irritation. Where HCl is found in the stomach even though there is an occlusion of the cystic duct it is fair to assume that the gall bladder is still functioning sufficiently to carry on the normal cycle and in those cases where there is a high acidity present the gall bladders are possibly in a state of hyperirritability and therefore producing too much hormone.

The author concludes that in that class of cases in which lack of free HCl is found in the stomach and no occult blood in the stool the gall bladder is irreparably diseased and should be removed. In cases of cholecystitis and gall stones with a

normal amount of HCl in the stomach contents the indications are that the gall bladder is still functioning and that drainage would be preferable.

The author urges conservation of the gall bladder where possible in order to maintain the normal secretion of HCl secretin and the other digestive juices.

LESTER H. HILLS

Will A M The Ad nt ge f Cholecystectomy  
in the A o dance of Adhesions in Gall Bladder  
Su g e y 1 : S g Phla 97 lx 4

The author reports a series of experiments performed upon dogs which tends to show that bile may stimulate adhesions if it comes in contact with tissues not surrounded by epithelium. In his first series cholecystectomy was performed without placing the bile into the abdominal cavity. Only one dog showed adhesion and these were insignificant.

In the second series cholecystectomy was done but the contents of the gall bladder were emptied into the abdominal cavity. At the end of twenty-eight days the dogs showed no adhesions but the other showed moderate or numerous adhesions. Cholecystectomy with drainage was done in the next series and in each case numerous adhesions resulted.

In the fourth series following a cholecystectomy the gall bladder area was smeared with bile infected with *B. typhosus*. Many adhesions were the result. In the fifth series *Bacillus coli* was used in place of the typhoid bacillus. In series four and five the number of adhesions as great as the preceding peritonitis were not made as used.

It is the judgment of the author that the gall bladder should not be explored by incision but by puncture. It is better to do cholecystectomy than to drag it out of the utmost importance that the rupture and frequently infected bile should not be allowed to come in contact with the peritoneum.

GATEWOOD

Benham F R Indications for Cholecystectomy  
and Cholecystotomy 4 S g Phla 97  
l 46

Attention directed to the fact that gall stones can manifest a persistent symptom even when no gall stones are found. Benham believes that cholecystitis should be operated upon as soon as the diagnosis is made. Many cases of so-called recurrent are due to overlooked stones. A diseased appendix is allowed to remain in contact with the gall bladder contents after the gall bladder is removed.

The present technique followed by most surgeons is incision through a median high line to the ensiform cartilage, that the liver can be rolled out and the gall bladder used as a tractor. Erycson acceding to the author must be allowed to itself in relation to the removal of the gall bladder. The author believes that cholecystectomy should be performed when the following conditions are

present. (1) when stones occupy the gall bladder (2) in the case of cholecystitis without stones (3) when the wall of the gall bladder is diseased (4) when there are stones or any other obstructions in the cystic duct (5) when there are adhesions around the gall bladder which interfere with its pump-like action (6) in the case of the strawberry or papillomatous gall bladder (7) in the case of malignancy

Cholecystotomy should be used (1) in cases of pancreatitis with jaundice (2) in the very old and feeble cases or in those cases of poor physical conditions (3) in those cases where the operation would be dangerous because of the inaccessibility of the gall bladder. The appendix should be removed in every case in which there is the least suspicion that it is diseased. D. N. EISENDRATH

**Bullock F. D. and Rohdenburg G. L. Splenectomy Exerts No Appreciable Influence Upon Immunity Against Transplanted Tumors**  
*J. C. Inter Res.* 1911 11 465

The authors report the results of further experiments in immunity to transplanted tumors. Their experiments were based on the assertions of Dr. Fano, Murphy and others that lymphocytes play an important part in the production and distribution of immunity and that the spleen as a lymphocyte-forming organ may take some part in the process.

The conclusions reached after observation on splenectomized animals are as follows:

Splenectomy has no effect upon the persistence of immunity induced by the receding rat sarcoma. Splenectomy does not influence the fate of regressive tumors.

Splenectomized animals are no more resistant to immunizing agents than are normal animals.

Splenectomy neither increases the percentage of susceptibility nor favors the growth of spontaneous tumor grafts.

The removal of the spleen or testes has little or no effect upon the immunity induced in adult mice by embryo emulsion.

Record charts of the experiments are given and references mentioned. L. R. GOLDSMITH

**Mayo W. J. The Relation of the Spleen to Certain Obscure Clinical Phenomena**  
*Med. Rec.* 1917 vol 705

The spleen may be enlarged to twice its size before the enlargement can be detected. Palpation gives the only definite information as to its size.

In 168 splenectomies in which there were various clinical manifestations the pathological changes both gross and microscopic varied chiefly in degree.

In portal cirrhosis with enlargement of the spleen it is suggested that the source of the poisons may be the spleen. Removal of the spleen gives results which justify this belief.

The author has removed the spleen in 50 cases of pernicious anemia. There is no definite relation

between the size of the spleen and the seriousness of the disease nor between the result of splenectomy and the size of the spleen removed. Temporary improvement occurred in every case. No patient has been cured but in 75 per cent of cases the benefits obtained justified the operation.

In 19 cases of spenomyelogenous leukemia splenectomy has been performed after first reducing the size of the spleen with radium. All but two were markedly relieved. There were no operative deaths.

In hemolytic icterus splenectomy has been performed 19 times with remarkable results. The jaundice which may have been present for years practically disappears in four days. There was one operative death.

The author has removed the spleen four times for biliary cirrhosis with satisfactory results in three cases.

Splenic anemia is cured by splenectomy in a high percentage of cases. In 43 splenectomies there have been four operative deaths.

In portal cirrhosis 5 splenectomies have been done with satisfactory results in four. One patient died following operation. H. J. VAN DEN BERG

## MISCELLANEOUS

**Castellano T. The Importance of Left Axillary Adenopathy as a Diagnostic Sign of Abdominal Neoplasms**  
(Importancia de la adenopatía axilar izquierda como signo diagnóstico de los neoplasmas abdominales)  
*Rev. méd. d. Ros.* 1917 vol 333

Clinical observation for some years has demonstrated to Castellano the relative frequency of neoplastic metastases in the left axillary ganglia in cases of tumors of the stomach, intestine and peritoneum. He quotes from the literature to show how far this has been observed by various authors. The symptom appears due to the fact that the thoracic canal through which propagation is effected runs into the left subclavicular region.

The author mentions 6 cases in which left axillary adenopathy enabled him to make a diagnosis of abdominal cancer. In all cases a subsequent operation or autopsy confirmed the diagnosis.

The symptom of left axillary adenopathy has not received the attention which it merits. The author thinks it should be a matter of custom systematically to examine the axillary as well as the supraclavicular and inguinal ganglia in all cases where an abdominal neoplasm is suspected.

W. A. BRENNAN

**Johnston W. H. An Unusual Complication of Laparotomy for Gunshot Wound**  
*La. et Lond.* 91 vol 533

The case reported is that of a soldier aged 6 who received a rifle wound in the abdomen. He was transferred to a casualty clearing station where a laparotomy was done. Five perforations were closed in the small intestine and two tears in the mesentery. The patient had a mild peritonitis for



such as *cori vara* and slipped cartilage epiphysis are not difficult of diagnosis. More recently osteochondritis or Perthes's disease a perfectly benign affection has been studied and separated from tuberculosis of the hip. While studying Perthes's disease cases are seen in which the symptoms are persistent lameness with little pain and stiffness and which clinically cannot be differentiated from osteochondritis. But instead of a flat and irregular epiphysis the X-ray shows a perfectly normal head and epiphysis with a spot of osteolysis in the neck or trochanteric region. This is due to a process known as hæmorrhagic osteomyelitis which never results in pus formation. In another class of cases localized infectious foci with pus formation so called bone abscesses are found. This may be due to an invasion of pus-forming organisms or to the reawakening of an old osteomyelitis. Similar processes may occur about the acetabulum.

These two classes of cases are also seen at the knee ankle upper extremity and are rarely multiple. The most common symptom is lameness and when a child suffers from persistent lameness a thorough clinical examination should be made with the use of the X-ray. The diagnosis is at once made by the appearance of a light spot on the plate. The spot at first is about the size of a nickel and as it progresses may leave only a cortex of egg-shell thinness. Occasionally these cases have been diagnosed as sarcoma. However there is no sequestrum no involucrum no pus.

In the advancing cases evacuation of the focus with moderate curettage of the cavity and in the larger cavities the introduction of autogenous bone chips give good results. Restoration of structure and function are practically perfect. Short periods of splinting and recumbency are effective in the milder cases without operation. The lesion and lameness may last for several years. In about 75 per cent of cases an initial history of trauma is obtained.

The treatment of bone abscess consists in opening the bone and curetting the abscess cavity disinfecting it with tincture of iodine draining and allowing the cavity to heal by granulation.

J. J. KURLANDER

#### Achard H. P. Regional Anæsthesia of the Upper Limb (A propos de l'anesthésie régionale du membre supérieur) *Progrès Méd. Pr.* 1917, p. 33

The author refers to the methods of regional anæsthesia of the upper limb devised by Kulenkampff and modified by Santoni. He thinks these methods are blind more or less dangerous and do not always give a sure result.

Achard proposes a method which although it has the disadvantage of occupying about thirty minutes in execution yet is absolutely without danger and is sure. The technique is as follows:

1. The patient is put in the classic position for ligature of the subclavian artery.

2. Under local anæsthetic an incision from 1 to 2 cm. long is made along the upper edge of the clavicle.

This will be outside the artery. After making the incision if the venous confluence is directly met it is pushed inward and upward in the manner opposite to that done in the operation for ligature of the subclavian.

3. The aponeurosis is incised and immediately at the bottom of the incision the white cords of the brachial plexus are seen reduced in this spot to three nerves only.

4. Five ccm. of five per cent novocaine are then dropped in the bottom of the wound a few moments later in injection of one ccm. of two to four per cent novocaine is injected with a fine needle under each of the three nerve sheaths. A bath of ten ccm. of one half per cent novocaine is given to the whole region and a suture of the aponeurosis and teguments is made by a couple of stitches in one row. Anæsthesia is certain because every nerve has been seen. There is no fear of any arterial lesion because operation is done quite openly.

As a general rule anæsthesia of the upper limb by this method is complete at the end of ten minutes and it is prolonged to one and one fourth hours.

The author adds that it is essential that a concentrated solution two to four per cent be used in injecting the nerves because the more voluminous a nerve cord the more necessary it is to have a concentrated solution in order to reach by a motile tension not only the superficial fibers but also the central fibers and it is on account of the high contents of the liquid in an anæsthetic substance that only a small quantity is employed. W. A. BRENNAN

#### Knaggs R. L. A Case of Osteo Aneurism Diffuse Traumatic Aneurism in the Surgical Neck of the Humerus. *B. J. Surg.* 1917, 243.

The author reports an interesting case of traumatic aneurism occurring in the interior of the humerus the patient having been wounded in the left shoulder on September 15, 1915. He was first treated in a general hospital in France for thirteen days he was then sent to England on October 1 where he was admitted to another hospital.

The bullet had passed through the surgical neck of the humerus the wounds were healthy and apparently superficial when he was admitted. On the night of October 21 he suffered a great deal of pain in the shoulder and the next morning pulsation was first detected about an inch above the exit wound. The upper part of the shaft was considerably enlarged and this was the subject of expansile pulsation. The main artery could be felt to be normal. There was no thrill and no bruit could be made out.

A roentgenogram was taken October 16 this showed a large irregular aperture in the surgical neck with commencement to the internal surface. Another roentgenogram taken October 31 confirmed the increased expansions of the bone and further enlargement of the space in the interior.

A diagnosis of rapidly growing endosteal sarcoma was made. On November 1 the interscapulothoracic

amputation by Littledale's method was performed. Rapid recovery followed.

The tumor revealed on macroscopic examination a dark red membranous portion of the traumatic aneurism. Further examination disclosed a portion of the original aneurismal sac in the higher part of the cavity.

Microscopic examination revealed no evidence of sarcoma, the cyst appearing to be constituted of organized ossifying granulating tissue.

### Young J. K. Syphilis of the Joints. *Med Surg* 97 836

Articular syphilis may manifest itself either hereditarily or in aquired form. In hereditary syphilis four different varieties may be numbered: (1) simple serous synovitis may be due to passive effusion and with little destruction of cartilage; (2) chronic synovitis with chronic hyperplastic degeneration of the synovial membrane; (3) osteochondritis accompanied by hemorrhages and necrosis of the physis; (4) chronic arthritis secondary to osteomyelitis of the epiphysis.

In the acquired form, syphilitic arthritis may manifest itself in the secondary or tertiary stage. The articular lesions which occur directly with the secondary symptoms are characterized by simple serous synovitis, transient edema, and in nature and leaving but little trace of destruction. Tertiary syphilis of the articular system is characterized by chronic hyperplastic synovitis, without formation of gumma, but followed by destructive changes in the articular ends about the joints. Finally, there are the lesions which result from the dorsal lesions of the known Charcot joint.

Because of the prominence of the articular lesions, the diagnosis of hereditary syphilis is not so difficult as that of the acquired form. The latter is most frequently ascertained by tuberculous suppurative arthritis. The association of syphilitic arthritis with other joint lesions omphalitis, the diagnosis is especially true of tuberculous and mixed infections, which may be grafted upon the lesion thus making the true diagnosis. In fact, the diagnosis is simplified by the discovery of lesions in the laphysis of the long bones due to ancient periostitis, the thickened triarticular appearance of the periosteum being almost pathognomonic of syphilis. The synovial fluid should be examined by diagnostic puncture.

The roentgen ray diagnosis of syphilitic arthritis is a study of consummation importance. The most characteristic lesion noted is the thickening of the periosteum due to successive layers of deposit, the physioepiphyseal junction. Unlike the blurring of the negative seen in early tuberculosis, the outlines of the bones enter into the formation of the articulation are distinct. When characteristic osteitis is present, there is darkening of the shadow from sclerosis of the bone above the area of activity.

Thinning at the seat of active inflammation and destruction are quite distinct which never has the mottled spotted or grossly irregular appearance met with in malignancy.

Tuberculous chronic articular arthritis is characterized by the absence of fluctuation, the capsule is not thickened, the joint outline is distinct, there is limited motion, pain on movement, spasm and pronounced atrophy. In syphilitic arthritis there is slight effusion, the joint outline is clear, enlarged, and undisturbed, there is some pain on motion but no spasm and light atrophy.

The treatment of the different forms of syphilitic arthritis varies according to the type of disease. The effect of mercury preparations upon hereditary joint lesions is met by a prompt and prompt. In the most common form of osteochondritis, after removing the infection from the joint by surgical means, Yergood's compound and healing bismuth most markedly aid the administration of mercury preparations. The joint should then be supported by plaster of Paris case and contractions fully guarded against in the chronic forms by suitable orthopedic apparatus. In the late stages, baking and counterirritation by means of iodine are beneficial. In Charcot's lesion of joint, puncture should be made for both diagnostic and therapeutic purposes.

P. G. SKILLERN, Jr.

### D. K. N. F. D. Diagnosis and Treatment of Certain Subacute and Chronic Joint Conditions. *J. Am. Med. Assn.* 9 4

The author discusses (1) static arthritis of the knee; (2) traumatic arthritis of the shoulder; (3) epiphysealitis of the hip; (4) loose bodies in the knee joint. Static arthritis, which is usually caused by faulty weight bearing due to knock-knee, protruded feet, or a combination of the two, and is characterized by constant lameness.

Triarticular arthritis of the shoulder includes fracture in the neighborhood of the shoulder joint, often followed by injury produced when the arm is abducted, dislocation, ulnar fracture of the neck of the humerus, or fracture of the olecranon. These injuries are too frequent to be described in a position of adduction and internal rotation, which allows contraction of the pectoralis major and the capsule and results in limitation of motion and pressure on the bicipital plexus, producing a firm panoply in the arm. Another cause of triarticular infection, which should be sought and eliminated.

Acute epiphysealitis of the hip, by no means as due to tubercles. In this condition, infection foci play an important role.

Loose bodies in the knee joint are often the result of osteochondritis dissecans. Differentiation should be made between the condition and dislocation of the semilunar cartilage, the roentgenogram shows a defect in the articular surface of the femur generally on the outer side of the internal condyle. Trauma is the most probable cause.

R. B. CORLE

**Roberts P W** *The Etiology of Perthe's Disease*  
*J Am Med Ass* 1911 *Liv* 19 1598

The author states that the etiology of osteochondritis of the hip generally known as Perthe's disease has been the subject of much speculation ever since the condition was recognized as a clinical entity several years ago. Traumatism, obscure infection and perverted metabolism have each had their advocates. Tuberculosis has been eliminated because the joints recover with good function and syphilis has been excluded because Wassermann reactions have been negative.

Notwithstanding the results of laboratory tests Roberts advances the opinion that this affection which occurs with considerable frequency in children is the result of inherited syphilis. In support of this view he states that

1 A negative Wassermann is not reliable as infallible evidence of the absence of bone syphilis.

2 The pathologic findings described by Perthe coincide with one of the most common expressions of bone syphilis in children, namely, osteochondritis.

3 There are subjects with Perthe's disease who show dental evidence of inherited syphilis.

4 The course of osteochondritis of the hip is similar to that of many other syphilitic joint conditions in that the destructive process is self limited and that there is a tendency to more or less complete restoration of function.

Roberts believes that the treatment of this condition on the hypothesis that it is of syphilitic origin is worthy of further investigation. In his experience all syphilitic bone and joint conditions improve more rapidly when the dose of potassium iodide is carried to the point of tolerance than when dependence is placed on a routine dose of moderate size.

PHILIP LEWIN

**Haller** *Fistulous Osteitis Consecutive to War Wounds* (Des os téte fistulisées suite de blessure par projectiles de guerre) *Pr* 1911, p 581

Haller draws attention to the seriousness of the fistulous complications which follow bone injuries in war. Surgical treatment alone is capable of promising recovery to the patient.

In investigating the signs and conditions of an osteitis Haller gives particular emphasis to the value of radiography. Every patient with a wound which will not cicatrize ought to be examined radiographically at once. Aside from those cases in which the suppuration is due to a retained projectile when there is an osteitic area radiography will show the modifications in the volume of bones as well as the structure of new bone which shows quite differently from normal bone. In a fracture area radiography will show rarifying and condensed osteitis, osteitic cavities, subperiosteal callus, etc. The author thinks that radioscopy in such cases is useless. It is by radiography alone that the lesion must be read.

As regards treatment it is difficult to lay down any general and precise rule to approach the osteitic

area. If there are cases where approach to the bone ought to be made through the fistulous tract such as in a case of tibial osteitis fistulous at its antero-internal face there are other cases which must be approached by a route other than the fistulous tract.

When the approach is through the fistula an elliptical incision is made around it and all cicatricial tissue excised. The soft parts are cut down to and including the periosteum by the bistoury. The periosteum is scraped away until the bone surface is exposed. When the fistulous tract is dangerous on account of the pressure of vascular pockets another route must be selected and this may necessitate reaching the osteitic cavity after breaking through much scar tissue. Whatever route is used the osteitic area must be very widely exposed. The osteitic areas and cavities are then treated with the chisel and mallet, gouge and curette, the sequestra as shown in radiographs are sought and a thorough examination made of all corners and sinuities of the cavity. Examination of the bone cavities must be complete and painstaking because even a very small area of osteitis left may give rise later to the same sequelæ. If a cavity is prolonged by a tunnel or pocket in the bone, such must be opened up and all affected tissue removed. After thorough cleaning of the infected bone the author has employed according to the case either Mosetig's paste or tamponade or an immediate muscular plastic operation in order to compensate for the bone loss.

The postoperative care depends upon which one of the treatments for crowning the cavity has been adopted. The author thinks that a plastic operation is the ideal method because it is done at the same time as the cleansing of the infected area. The soft subcutaneous parts easily slide toward the cavity to be filled and create adhesions. The postoperative treatment in such cases is slight. Withdrawal of the sutures about the eighth day follows. If hæmorrhage has been careful there are no accidents but if not a hæmatoma may result.

W A BRENNAN

## FRACTURES AND DISLOCATIONS

**Ashhurst A P C** *Screw Fixation in Joint Fractures* *Med & Surg* 9 7 181

The author believes that accurate reduction of the fragments in a fracture near to or involving a joint as a rule may be secured by bloodless manipulation. It is more important to secure anatomical reposition in such fractures than in fractures of the shafts of long bones, but it is also easier.

In joint fractures failure of accurate reduction entails not only deformity but also marked limitation of motion, yet fortunately as one fragment is very short its position usually may be controlled by the position in which the neighboring joint is dressed. For example in supracondylar fractures of the humerus hyperflexion of the elbow secures anatomical reposition of the lower fragment in contact with the diaphysis. There are those cases however in which bloodless manipulation will prove



unsuccessful even after several attempts under anesthesia. In such cases reduction should be secured by open operation and this is usually advisable to the fracture in proper position by closed prothesis.

The author lists the various means of accomplishing the end by practical application of ordinary wood screws, wooden or dental bone pegs, utogon bone joint, utogon splays, H. B. L. S. the best method that of Lambott screw fixation.

It is n e a v m e r l y t r e d c the fract e to  
clamp the fragm nts urely th the bone for cps  
to insert the l f b ring w o s s to remov  
th fo p a d lo e th soft parts On e the  
the fragm nts r e d c th n r s t e c n s r t e h l d s  
th m n p o t o n Th i n o p s b u l t y th t a f t r  
a hol i d l i fo the and the peg th f g  
m n t s m v s l p n d fall ut of al gn m t

Th el f bor ng s rcw l v fl at h d of s b  
shap th t th v ht to spr l hold h h s  
adjustable to any ordina v br l The sc p int  
s then pl ed g n t h bo th d ll rotat d  
unl th s ev hrml y d in the bone th bra  
with attached holde l th n remo d from th  
sc re wh t i n ll s w d all the way home by  
an ord n rv cr w d v r In most cas s it s w ll  
to employ two s v s ord r to prev t at tion of  
one f gment on th oth and l s r v s h ld  
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angle one s v b d the oth r a d make p rat  
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th n s done by s re ng th m d v n upon th rt  
as tght a pos ble us ly th p rot um or joint  
leam nts e e to a kv l th the s e h ads

This revision should not be placed in a subcutaneous position, exposed to trauma as for instance directly over the pectoral or pectoral at the elbow or over the subcutaneous surface of the external iliac.

Ashhurst h s s d th s sc ws n 6 pat nts  
and h s ne er h d to mo ny of th mon a cunt  
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9 4

The author believes that many fractures can fully treated by the ordinary method without amputation and in impairment of function and necessity of me surgical intervention. The interval laparng between the accident and the decision to submit to final operative correction is often much too great and may keep the patient for several months unnecessarily sharp condition of total disability.

The secondary correction of malunited fractures yields good results and should be resorted to as promptly as possible. In cases with a bad result instead of a long interruption in treatment the necessary correction should be commended at an early date.

If these cases are cogni d ea ly handled w th

decision and submitted promptly to operative intervention much improvement will result.

In the field there are many available procedures and interventions such as removal of entrapped muscle and fascia from compressed nerves, osteotomies, bone graft operations, occasional wiring and resection or arthroplasty. Conditions may often be so improved as to give the patient a useful limb.

PHILIP LEWIN

Walke S Po t on nd T cti n n the T t  
ment of F ctures I t t J S g 97

The author attempts to demonstrate (1) that all fractures should be treated by the emergency dressing (2) that the future of bone is not the injury and not the only portion of the injury depends on being treated (3) that rays x-rays are used to see if there should be deformity and it is (4) that the position of injured member based upon the mechanical produced by the fracture and the position of deformity by the muscles that splint known (5) that the classical position of the ends of the broken bones is not always the best. These are the positions that the mechanical will produce.

E C I its

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f t mpl q t p m t m t)  
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The 30 cases gave 83 per cent perfect recoveries  
of fistulae and fallopian tubes.

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e s o 8 p cent

I got was able to execute primary suture in 88 per cent of the cases received by him and his rate of recovery is 80.3 per cent. His colleagues practiced primary suture in 50.9 per cent of case of fracture received and obtained success in 82 per cent. The factors counting for success are early intervention and satisfactory transport with immobilization of the fracture. W. A. BROWN

**Ridlon J. Congenital Dislocation of the Hip**  
*St. g. Cl. : Cl. Cl. g. 13 : 1 71*

Ridlon states that most cases of congenital dislocation of the hip are in girls and that in the majority of unilateral dislocations the left hip is affected. The time to replace the hip is determined primarily not by the age of the child but by the extent of shortening and the muscular development.

When the shortening is less than an inch the replaced hip almost invariably slips out again because the structural shortening of the muscles is not enough to hold it securely in the socket. On the other hand one and three quarters inches shortening in a child of good muscular development 8 or 9 years old is difficult to replace although two inches may not be difficult in a child of three or four years of age.

The bloodless replacement usually called the Foulz operation consists in stretching of the ligament by external movement and manipulations in all directions and then stretching of the limb by successive traction. The adductor muscles are torn across subcutaneously by holding with the edge of the hand. The abducted femur is then pried over the edge of a wedge block under the buttock until the femoral head passes into the socket. The author followed this method only to discard it.

Ridlon's method is as follows. The patient flexed knee is grasped and the thigh fully flexed on the body. The operator finds the greater trochanter neck and head of the femur with the fingers of his other hand and places the thumb of that hand in front below the anterosuperior spine of the ilium. The femoral head is then pushed downward to a position opposite the lower part of the rim of the socket. The thigh is abducted while the opposite side of the pelvis is held firmly down by an assistant and the head can be felt by the operator's fingers and thumb passing forward and into the socket.

When the limb has been placed in the most secure right angled abduction position the stockinette and sheet wadding are applied. With the patient's body resting on a sacral and back rest plaster bandages are applied to make the permanent plaster cast. It is necessary to extend the plaster down on the leg with the knee bent at right angles to prevent the thigh from rotating.

When considering prognosis the author divides hip cases into three classes: (1) those that are displaced backward and upward of these 80 per cent give perfect results; (2) those displaced directly backward among which 60 to 70 per cent give perfect results; (3) those displaced forward and up-

ward about 50 per cent of this class give perfect results. The bilateral cases are classed by themselves and do not give perfect results in more than half the cases. Frequently but one cast is applied which remains for eight months. In older cases the first cast is removed at the end of four months and after the legs are brought nearer together a new cast is put on sometimes a third is applied.

When the cast has finally been removed the mother or nurse makes a gentle inward rotation and stretching downward of the legs until after daily efforts the limbs are brought together and the toes point directly forward. P. H. KREUTHER

**Fowler R. H. Dorsal Dislocation of the Great Toe at the Interphalangeal Joint**  
*Med. Times 1917 xl 83*

The author states that there are few cases of interphalangeal joint dislocations of the foot on record. The majority have been noted in the great toe as compared with dislocations at the metatarsophalangeal joint which is a common injury. This particular dislocation is very rare.

Fowler reports a case. An 18 year old boy injured the great toe while playing football. Pain, deformity and disability resulted. Examination with the roentgenogram revealed incomplete dislocation with backward displacement of the distal phalanx. Efforts at reduction failed. Under gas anesthesia forcible correction failed and an incision was made over the joint and the contracted tendon of the extensor proprius hallucis was divided. Reduction was easily and successfully obtained. PHILIP FOWLER

**SURGERY OF THE BONES JOINTS ETC**

**Chaput H. The Prevention of Ankylosis after Elbow Resection by Immediate Mobilization**  
*(Truement pre-entif de ankyloses survenant après l'extirpation du coude par la mobilisation immédiate) II. H. I. ém. Soc. de chir. de Paris 97 xlvi 105*

Chaput gives short clinical histories of four cases in which he made an immediate mobilization after resection of the elbow for fracture.

The cases tend to demonstrate:

- 1 That immediate mobilization not only is not dangerous but that it is indispensable to avoid post-operative ankylosis.
- 2 That muscle and fat tissue interposition is useless.
- 3 That immediate mobilization is contra-indicated when there is articular infection.

W. A. BROWN

**Miquet P. and Tanton J. Traumatic Resection of the Hip for War Wounds (La résection traumatique de la hanche pour blessure de guerre)**  
*J. de chir. l'ar. 1917 xl 113*

The authors have successfully practiced resection of the hip in 12 cases of war injuries. The results



median on the anterior face of the knee starting from the lower extremity of the patella across its anterior face and rising above it for about four or five finger widths to the point where it meets the subquadricepsal cul de sac. But the method is too mutilating owing to the fact that the cutaneous patellar strip left free until complete recovery undergoes a very marked retraction and not only leaves a large deforming scar of the knee but also a very notable functional defect i. e. the abolition of movements of extension. There is interrupted continuity of the patellar tendon.

For the purpose of avoiding these undesirable results Mosti applies a continuous extension to the cutaneous patellar strip using a simple procedure. On the cutaneous face he fixes two wide strips of adhesive plaster. The two free ends brought together are fastened to an elastic tube. The tube is fixed to the end of a metallic stirrup fixed in the part of the immobilizing plaster cast which corresponds to the plantar part of the foot. The tube is kept in slight tension. The cutaneous strip thus requires a strongly oblique position and the articular cavity is kept gaping so that the Carrel method can be applied. When a relative sterilization of the articular cavity has been reached the tendon stumps are united with catgut by a tenorrhaphy and the cutaneous margins sutured without drainage. This is easily done as the strips have preserved their full length owing to the traction exerted on them. In general the secondary suture can be attempted from the tenth to the fifteenth day.

Mosti has adopted this method for some time past in the majority of knee wounds with the best results. He reports some typical cases. He claims that the transpatellar arthrotomy with the modifications made by him is applicable to every type of knee wound no matter how much time has elapsed since the injury. It also fulfills other conditions which cannot be satisfied by other methods. He sums up the advantages as follows:

- 1 It widely exposes the greater part of the articulation thus giving means for better drainage.

- 2 It enables a wide exploration of the articular cavity to be made and by bringing eventual lesions into full display facilitates the operative manipulation.

- 3 Elastic traction applied to the cutaneous patellar strip while keeping it in a strongly inclined position hinders its retraction whatever may be the duration of the treatment.

- 4 Secondary suture both of the patellar tendon and of the cutaneous incision made possible by the prevention of retraction allows an almost complete restoration or a solid ankylosis in the best position. It obviates the large and deforming scars which generally result from other methods.

- 5 It is almost always possible in this method to conquer sepsis in the shortest possible time and secondary resection very rarely becomes necessary if it is not altogether eliminated.

W. A. BRENNAN

# Osgood R. B. and Bull E. C. Operative Treatment of Tuberculosis of the Knee Joint in Adults. *J. Am. M. Ass.* 1917 LXV 1162

In children the centres of growth are in direct anatomic relation to the joint and disturbance of these centers by disease or operation may seriously affect the length of the limb. There is also a more marked resistance to the disease and cures with only slight disturbance of function frequently occur when persistent and continuous fixation is combined with general treatment.

In adults the disease once established never fully recovers in the authors experience without operative interference of some form. The diagnosis of knee joint tuberculosis cannot be made with certainty in the acute stage. Several other monarticular affections may be mistaken for it, a subacute gonorrheal infection, syphilis, villous arthritis, simple chronic arthritis or a traumatic arthritis.

The authors are convinced that the disease is at times primary in the synovium. They find the von Pirquet test to be of only negative aid in excluding tuberculosis. The subcutaneous test is of great value, a rise in temperature, increase of the local joint symptoms such as added heat, tenderness, etc., is almost conclusive evidence of the presence of the disease. The X-ray findings are negative when the disease is in the articular cartilage. Tuberculosis is a destructive process and when the bone is affected loss of substance will often be shown. There are often lime salt deposits beneath the periosteum, typically there is a hazy appearance of the articular surface. The Wassermann and complement fixation tests are done as a routine.

The authors practice is to operate as soon as the diagnosis is made. Operation is deferred for about a month during which time the knee is put at complete rest with no weight bearing. In this way the acuteness of the disease subsides. Only two types of operation are considered. When the disease is thought to be in the synovium an exploratory arthrotomy through a three inch lateral incision is done and if no bony disease is found the joint is injected with from one to four ounces of a 4 per cent iodoform olive oil solution. A second or third injection may be necessary. If the bone is diseased excision of the joint is the procedure of choice.

Some method of fixation of the bone ends aids in early union. Fixation is accomplished by the use of steel plates or kangaroo tendons. The plates must occasionally be removed. In those patients of sedentary occupations 45 degrees of permanent flexion is given while in those of a chiefly ambulatory occupation from 15 to 0 degrees of flexion is allowed. A plaster cast is applied extending from the toes to the groin. Firm callus is usually present in from four to eight weeks and weight bearing with artificial support is commenced at three months.

The operation is not generally contra-indicated in the presence of visceral disease elsewhere and after excision such lesions in many instances improve greatly.

J. J. KURLANDER

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This lesion was reported first as a clinical entity in the August 1914 issue of *SURGERY GYNECOLOGY AND OBSTETRICS* by Freiberg of Cincinnati who reported six cases clearly defining the condition and its pathology.

The main symptom is severe pain in the metatarsophalangeal joint of the second toe especially after walking. The head of the second metatarsal is distinctly thickened very tender and painful to all motion of the joint. The roentgenogram reveals a flattening of the head with laterally placed osteophytes. These may become detached as free bodies in the joint. Such a picture may be easily mistaken for some other non-traumatic process. Careful investigation usually reveals that the symptoms date back to stubbing the foot as in basket ball when running up steps etc.

The condition may be relieved by felt pads posteriorly placed followed by steel bars in the shoe to limit motion of the joint. When such measures are not effective removal of the free bodies often gives an excellent result.

Campbell reports 5 cases 3 in detail. Of 11 cases reported including Freiberg's 6 were in girls about the age of puberty and in middle aged women. No case has been observed in males. The condition must be more frequently seen but undoubtedly is the cause of quite a number of interior arch disturbances probably hitherto not perfectly understood. LITTLE LEVIN.

**Fracture Equinism Consecutive to War Wounds**  
(Sur l'équinisme consécutif aux plaies de guerre)  
*Presse Méd.* 1917 p. 135

The author comments on the great frequency of varying degrees of equinism following war fractures. There is equinism whenever the angle of flexion between the foot and the leg is reduced. This angle normally exceeds a right angle by from 0 to 25°. Hence it is an error to think that there is no equinism if the foot can flex at a right angle to the limb. Equinism will not occur according to the author if suitable prophylactic measures are rigorously insisted on.

Such measures may be outlined as follows: (1) every patient with a wound of the calf of the leg or of the Achilles tendon should have the foot maintained in good position in a splint. When the foot can easily flex the splint may be dispensed with and a special method of bandaging applied which the author describes and illustrates. (2) every patient with contracture should be subjected as soon as possible to systematic mobilization both active and passive of the foot. (3) the splint employed should be one which bends the foot at 80° to the leg. (4) crutches and canes must be rigorously dispensed with. (5) patients with ulcerated wounds should only be permitted to walk when with the knee flat the foot can be flexed at 50° without pain and when the patient can crouch and flex the foot completely the heel not leaving the ground.

The author's experience has convinced him of the

absolute uselessness of physiotherapy and mechanical therapy in the treatment of confirmed equinism. Vigorous orthopedic measures extension apparatus and plaster casts must be applied.

The author has observed more than 100 cases of equinism treated by tenotomy. The results were often very defective. In subcutaneous tenotomy the tendinous sheath if forced open cannot be reclosed. The skin invaginates between the two tendon stumps and adheres to their cicatrix. The result is very painful walking. Even if a high tenotomy according to Jullienne's technique is done the intratendinous cicatrix is not always solid and may rupture; this happened in some cases treated by the author. The inconveniences may be avoided by adopting the method of tenotomy by which there is a double transverse incision, the two horizontal incisions being united by a longitudinal median incision.

The author has treated more than 100 cases of developing equinism. By the vigorous application of these prophylactic measures it has not been necessary to evacuate a single case for mechanical therapy nor to perform one tenotomy for equinism.

W. A. BRENNAN.

**Groves I. W. H. The Methods and Results of Transplantation of Bone in the Repair of Defects Caused by Injury or Disease.** *J. I. J.* 5, p. 197-118.

The transplantation of bone depending as it does upon the fundamental facts of bone structure and growth has been the subject of much experimental and clinical work.

Divergent views are held by leading workers. Havers in 1692 gave the first accurate account of osseous structure and he described periosteum as a connective tissue limiting and vascularizing membrane.

Ollier's work in 1867 was so thorough and so careful that his conclusions have attained an almost unassailable position. Unfortunately that part of his work which related to the apparent osteogenetic function of the periosteum has taken so firm a hold upon surgical teaching that the remainder has been overlooked or forgotten.

Axhausen in 1898 was dominated by the idea then universally held that the periosteum was the principal agent in osteogenesis.

In 1911 MacCawen denied that the periosteum was anything but a limiting membrane and he ascribed to the osteoblasts all the phenomena of bone growth and repair.

Axhausen has without doubt shown that after bone grafting the chief osteogenic is in the graft or occurs beneath the periosteum. But it might equally well be stated that the new bone is formed under the superficial surface of the old bone as that it arises from the deep surface of the periosteum.

It contains two well marked stages, i.e. the early cartilage and the late bone; the former is converted into the latter. But the bone callus is next to the

bone while the cartilage callus is next to the periosteum showing that the site of origin of the whole is from the bone and that it is formed from within out and not from the reduction.

The protuberant living membrane of the bone. The living bone can undergo repair and produce a new bone. The living bone can be removed. In a living bone it is possible to remove the periosteum and have a new bone produced. The living bone can be removed. In a living bone it is possible to remove the periosteum and have a new bone produced. The living bone can be removed. In a living bone it is possible to remove the periosteum and have a new bone produced.

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Four American papers represent the work suggested by Macewen's book. In all the experiments done on the arm, the living bone was confirmed. Macewen's experiment showed that the periosteum is a flap or a free graft did not produce bone but if a flap of bone was added to this membrane, osteogenesis occurred. Brovi and Brovi also obtained results similar to Macewen. They added the important observation that living bone transplanted to soft tissue only survives for a short period but ultimately undergoes all the changes of a living bone.

Actual osteogenesis occurs in the graft. 2. Osteogenesis occurs in the graft produced of its periosteum and endosteum but much more so than that occurring in the old or split grafts.

3. The most marked osteogenesis occurs in the region of the epiphyseal union.

4. Of fragmented grafts many pieces develop slowly and scanty osteogenesis does occur around the separate pieces.

5. A fractured graft shows osteogenesis in the callus formation at the site of fracture and this is even more marked than the osteogenesis occurring between the ends of the graft and the mother bone.

6. Free periosteum does not produce bone.

Bone transplanted into soft tissue atrophies. 8. In a periosteum sleeve from which bone has been removed it is boiled and placed a cylinder of callus makes its appearance on the deep surface of the periosteum.

McWilliams' experimental results demonstrated the practical importance of the periosteum. They show that although a nude graft could live yet they did so on a much smaller proportion than those transplanted with the periosteum. Split grafts also demonstrated the importance of securing a ready blood supply to the epiphyseal end and endosteum.

Levens had remarkable success in the transplantation of whole joints in human subjects employing the peculiar technique. Joints taken from freshly amputated limbs or those taken from corpses within twenty-four hours of death may be used.

Living bone tissue can be cultivated *in vitro* and the resulting phenomenon has an important bearing on the problem of the survival of grafts and on the role of the different tissues. Dobrowolka has carried out this work.

The author's experiments were performed on adult and young rabbits and the femur. He describes his technique and states that living grafts rather than dead ones that autogenous grafts rather than homogenous and that homogenous grafts rather than heterogenous. Sufficient weight of evidence exists to show that graft provided the periosteum and endosteum will more surely live than or quickly go to a nude graft.

The following summary of the perimetral graft.

1. The most ideal graft is a piece of living bone in its natural thickness.

Any kind of bone graft gives better results than undecalcified bone broken up into small fragments.

3. Fragments of living bone unless closely united with the surrounding tissue are as useless as passive structures and display no osteogenesis.

4. Dead tissue formed from living bone does not maintain vitality.

5. Cortical grafts are far better than intramedullary.

6. A transmedullary graft of all kinds loses its capacity for participation in the development of a splint. If it hits the marrow cavity of the fragment tightly it hinders osteogenesis and frequently causes fracture.

The success of the living graft depends on the length of the contact with the extent of its contact with the bone (b) the accuracy of its apposition (c) the manner of its fixation.

8. Firmness of primary importance in the repair of fractures is long bones by grafting.

9. A graft of dead bone (bored) properly fixed by a tight suture will give better results than a living autogenous graft fixed by catgut alone.

10. Metal sutures and pins are useful in the fixation of many grafts. When properly applied they secure the necessary fixation and the incidence that they hinder osteogenesis.

11. For use of pins or nails there is no advantage in using living over dead bone.

12 Homogenous grafts under favorable circumstances act just as well as autogenous.

13 Dead bone grafts are certainly inferior to living when used to fill defects in the long bones but under favorable circumstances they become strongly incorporated into the living skeleton.

14 Provided that secure fixation of the graft to its bed is not disturbed mobility of the limb favors osteogenesis while immobilization hinders it.

With regard to clinical methods exclusion of the skin surface from contact with the fingers and the instrument is very important. It is a matter of clinical and experimental evidence that the occurrence of a slight degree of sepsis does not prevent bone repair though it generally hinders and delays it.

After a septic fracture active inflammation may subside until only a sinus remains or this may heal up and yet in the scar tissue real infective material of a very active sort may remain latent and any wide opening up of the tissues will cause this latent sepsis to spring into a most malignant activity. In any case where a sinus or any open wound remains it is utterly unjustifiable to attempt a bone grafting operation. The proper procedure is to extirpate the sinus and then when healing has occurred to wait for several months treating the limb by massage. If no relapse of sepsis occurs under this treatment then the further operation may be undertaken.

It must be laid down as a primary rule for bone grafting that cutaneous scar tissue must be replaced by healthy skin before the operation and deep scars must be excised during the operation.

Whatever view may be taken of the exact function of the periosteum and medulla there can be no doubt that the preservation of both of these structures is a matter of importance in taking a living graft. Although new bone is probably the product of osteoblasts of the graft nevertheless it is on the surface of the dense bone i.e. from the eposteum and endosteum that this new bone is laid down. The periosteum and marrow protect these surfaces and act as vascularizing tissue to them.

It is necessary that a bone which has been grafted should be immobilized for several weeks or months after the operation. A light supporting splint is used for a few weeks and when the wound is healed the limb is subjected every day to light massage with movement of the joints. In this way the nutrition of the muscles and the flexibility of tendons and joints are preserved while the formation of new bone is encouraged. ISIDORE C. HILL.

## ORTHOPEDICS IN GENERAL

Lowman C. L. Results of Further Study in Leg Rotation. *Boston M & S J* 1917 clxxxiv 440.

A very high percentage of the posturally relaxed children have faulty foot positions which are mainly acquired but may be congenital. They usually have one or more groups of weakened or over stretched ligaments or muscles caused by a too rapid growth or increase in body weight plus a

faulty gravity line of the leg or caused by weakness more pathological such as malnutrition.

Treatment should not be confined to the feet. When the thigh drops into inward rotation from whatever cause primary or secondary the weight falls through wrong lines upon the lower leg and foot structures. The control or prevention of this faulty thrust should be the aim in any line of treatment. All children should be stripped for examination although they may have been referred only for weak ankles flat feet knock knees or bow legs.

An ordinary pelvic girdle is made fitting snugly above the crest and sacrum. Two straps one and one half inches wide of folded coutille or strong muslin are sewed to this girdle. These pass from the midline posteriorly downward outward and forward crossing the thigh anteriorly to the inside of the knee over the condyle behind the bend of the knee and outward over the outer aspect of the calf ending in a buckle at about the junction of the middle and lower thirds of the leg. Smaller straps of the same material broader at their distal extremity and tapered at the top according to the width of the buckle are tacked in the shoes just back of the base of the fifth metatarsal. These pass inward under the front of the os calcis and scaphoid through a slot in the tocking upward and outward to the buckle on the leg strap. The patient stands on the outer border of the feet while these strap are buckled. On patients who wear a pine brace these straps may be fastened to the brace. In case of flat back the straps may be fastened to the girdle higher up and pass across the crest far enough forward to increase the pelvic tilt and correct the flattening. In spiral cases with genu recurvatum or in cases that toe out markedly the leg strap should be brought down behind the thigh passing back of the knee to buckle on the inner side of the leg.

The shoe is usually corrected by having a one eighth inch raise on the outer border of the sole under the heads of the fourth and fifth metatarsals but not extending to the toe and a one eighth inch raise on the inner border of the heel.

General and local corrective gymnastics and balance board exercises are given. Accompanying photograph show the leg harness and the apparatus.

CARL J. STEINKE

Turner P. The Treatment of Trench Foot and Allied Conditions by Bier's Method of Passive Hyperæmia. *Lancet* Lond 1917 cxviii 638.

Raymond and Pissot treat cases of trench foot with gauze compresses soaked in a solution of camphor and borax in boiling water. The author believes that keeping the feet dry rather than wet yields better result. The etiology is summed up by saying that the condition is essentially one of inflammation due to the direct action of cold on the tissues. The histological examination shows that the chief changes are in the blood vessels. Raymond





fracture until the latter has been excluded by every means of diagnosis especially by X-ray plates

**Frantz M H Pseudohypertrophic Muscular Dystrophy** *Med Times* 1917 xiv 279

Frantz offers a general discussion of this condition with a report of cases seen within a month

The author believes that progressive muscular atrophy is an uncommon disease and pseudo hypertrophic muscular dystrophy one of its forms is still more uncommon

In the differentiation of this condition he emphasizes (1) the early onset (2) the atrophy of the muscles above the pelvic girdle (3) the pseudo hypertrophy of the muscles below the pelvic girdle (4) the pseudohypertrophy of the calf muscles

The treatment of the condition is very unsatisfactory. He quotes Sachs and Brooke who advise electrical treatment. Collins and Climenko who found thyroid and thymus extract and strychnine of no value. McCrudden and Sargent who gave adrenalin and pituitary extract and found in a case that the blood sugar contents as well as the cholesterin content increased. The author gave one patient pituitary extract and adrenalin by mouth and after two weeks treatment the patient showed marked improvement

PILGRIM IRWIN

**Halstead A E Hereditary Deformans Chondri Dysplasia** *Surg Cl Chicago* 1917 i 95

This condition is also known as multiple cartilaginous exostosis and multiple congenital osteochondroma. The characteristic findings in this disease are (1) Multiple and more or less symmetrical osteochondrous growths are found upon the skeleton on or near the ends of the long bones and occasionally on the bones of the face and skull they have also been found on the pelvic bones and the vertebrae. These exostoses are generally benign although cases in which they take on a malignant character have been known (2) In large percentage of cases the disease is congenital (3) Other malformations are frequently associated with these osteochondromata such as a low stature due to the shortness of the lower limbs. As a rule the lower limbs are much shorter than the upper. There is also frequently observed a relative shortening of the ulna and fibula producing by the relative overgrowth of the radius and apparent luxation of the bone at one or both extremities. In the lower extremity the lack of growth of the fibula causes a pes valgus. These deformities may be present before the exostoses make their appearance

Pathologically there is a chondrodysplasia affecting the metaplasia of the long bones principally. The epiphyses are rarely deformed. The intermediary cartilage is irregularly formed and frequently prematurely ossified cartilaginous deposits are found along the shafts of the bone. These may remain unossified or present partly ossified areas. The cartilaginous areas or deposits later may develop into osteochondromata or chondromata

The prognosis is uniformly bad. No cure is known. When the exostoses limit the movement in a joint by the size and location they may be removed. The etiology is unknown. J J KURLANDER

**Peckham F E The Treatment of Scoliosis** *J Am M Ass* 1917 lxxx i 33

Lockham believes that true structural scoliosis develops from a diseased condition of the bones and ligaments of the spine. The etiological factor is that which interferes with calcium metabolism. This may be rickets infections including rubeola in toxications or the rapid growth which often takes place during adolescence. The physiology of the endocrine organs is of great importance and the thyroid gland in particular which is supposed to preside over calcium fixation

Treatment therefore consists in the administration of thyroid gland or mixed gland tablets and mechanical fixation in the overcorrected position where possible

R B C FIFIN

**Parker C A Acute Suppurative Destruction of the Upper Femoral Epiphysis So Called Epiphysitis** *Surg Cl Chicago* 1917 851

FIVE cases of acute suppurative arthritis of the hip joint with destruction of the head of the femur are reported. The pathology is usually a staphylococcus infection metastatic from some focus intercurrent with a general infection and results in necrosis of the entire epiphysis but sequestra are not always found

It is limited in occurrence to the years of epiphyseal growth. The ages of the cases here reported are two four and eighteen years. Shortening of the femur always results and usually a flexion deformity

Most of these cases come to the surgeon after the acute stage when the treatment necessarily consists in the correction of the deformity. The hip joint is usually greatly impaired but complete ankylosis is not common

The correction of the flexion and adduction is accomplished under anesthetic subtrochanteric osteotomy sometimes being required and the leg is held in the extension abduction position by a plaster cast. Efforts to place the neck of the femur in the acetabulum or to reconstruct the joint are usually unsuccessful

W A CARR

**Mixsell H R Osteogenesis Imperfecta** *I d d* 1917 xxxv 756

The condition known as osteogenesis imperfecta is described as synonymous with fragilitas ossium and osteospathyrosis. Attention is called to the influence of heredity in its occurrence. The multiple spontaneous fractures which occur are the result of a distinct deficiency in bone development the haversian systems of stress resisting bony rod being absent and the cortex extremely thin. The skull may feel like a rubber bag with mosaic inlays of small pieces of bone around the center of ossification with the fontanelles wide open

Metabolic studies of the patients show that the calcium retention is decidedly below normal. The general appearance is that of chronic illness, the skin is soft and delicate, the child is underweight, mentality poor, check hot, heart asymmetrically, extrinsic shortness of ribs with various sorts of deformities due to the fractures. The fractures are usually intraprostal and the iliac formation is eccentric. Statural markings with spongy bone resorption and the mullary cavity large showing gular mottled skin, sinistronogram.

Two sisters are reported, one a child of eight months had fractures of both femurs at birth and the other a less spontaneous fractures in the first year of life. The skull was tabetic and the brain hypophyseal. The child improved on cod liver oil and phosphorus. The other case a year old showed myelitis of all spinal cord for months, the hind legs in a multiple fracture. The child improved and returned to normal.

W. A. C. Rk.

Loft R. W. Oti p. d. P. o. b. l. m. in t. l. Aft.  
T. e. m. e. n. t. of Inf. n. l. P. l. y. s. i. J.  
O. l. p. s. g. 65.

The author presents the case of a child of eight months of age with paralytic, which has given him the most trouble physically and about the settlement of which there is not any agreement among medical experts. The child is weak, the paralytic paralysis is more of a weakening than a total paralysis of the affected muscles, that contraindicates a direct and troublesome and must be guarded against from the outset.

That the use of bracing is not a conservative rather than a therapeutic measure. That fatigue is dangerous, especially in the early and temporary or permanently detrimental to conservation and improvement of the affected muscles must constitute the aim of the orthopedic surgeon.

That of the therapeutic measures available for use in the after treatment of the child, the physiological and pathological equilibrium, but to be effective it must be based on a thorough and accurate muscular diagnosis and must be carried out with optimism, persistence and accuracy.

That such treatment has a definite effect upon the prognosis and is likely to furnish the

orthopedist with a degree of improvement and a proportion of complete recovery that is not as a rule considered possible. PHILL LEW.

Ry on E. W. Tendon Transplantation for Relief of Paralysis Following Anterior Poliomyelitis  
S. R. C. L. C. L. g. 97 71

The case reported is that of a boy of fifteen years old, the flexion deformity of both legs and of the left thigh resulting from infantile paralysis followed by contractions of the muscles opposed to the paralysis of the muscles. Operation in such cases is not advised until after two years at least during which time the patient is thought to take place.

In this case the paralyzed muscles were the quadriceps extensors of both thighs. The patient was unable to walk because he could not extend his knees, although the feet were in good condition. In order to restore the balance of muscle power about the knees the semitendinosus and long head of the biceps peronei were transplanted from their tibial insertion to the tendon of the quadriceps extensor of the thigh.

Following the operation at the left hip, as overcome by cutting the tendon of the sartorius and rectus femoris muscles also at their origins, it was found that the motion of the back of the thigh from the level of the head of the tibia upward almost to the tubercle of the greater trochanter. The long head of the biceps was dissected out cut from its insertion and taken to the tendon of the quadriceps. The tendon of the semitendinosus was transferred to the muscle. Plastic lengthening of the short head of the biceps had to be done to allow extension of the knee, but the terminal popliteal nerve still prevented dimmed to complete extension so a Buck's extension splint was applied after the operation. The knee was kept in extension.

In the second case the motion of the lower extremity was improved four inches and commutated in this and the posterior radius and by dissection of the back on each side of the condyles. For the insertion of the tendon from the front and the tendon picked up pulled through a dissection into the groove cut in the posterior surface of the patella. The tendons tend to be not loose enough by an inch and a half the biceps was supplied by the knee joint. The leg was kept extended in casts for six weeks. W. A. C. Rk.

## SURGERY OF THE SPINAL COLUMN AND CORD

Bauman G. I. Treatment of Tuberculosis of the Spinal Column. J. g. 657

The author describes the method of treatment for spinal tuberculosis which he uses at the Rainbow Hospital, Cleveland. The children are placed on hyperextension frames, the pressure between the diseased bodies of the vertebrae is avoided as far as

possible. There is a marked decalcification in the area involved leaving soft pliable masses which is held to ether only by the natural resistance of the soft parts, the bony framework posteriorly and the contraction of the muscles. This mass can easily be lifted by traction or compression. Efforts are made to hold the spine quiet to a

the pressure of the weight of the body above the diseased area and to promote healing.

It is gratifying to the author to note that the importance of recumbency in the treatment of the acute stage is receiving due credit. If it is combined with the proper amount of hyperextension and constant out of door living the patient will be at the greatest advantage in combating the infection and the likelihood of subsequent deformity.

Various forms of hyperextension may be used the gas pipe frame the plaster of Paris bed mattresses or boards decision should be left to the discretion of the surgeon. The author prefers the plaster or celluloid bed.

The period of recumbency varies with each patient and should be governed entirely by the progress of the case. In general it should not be less than one year in the acute case.

It is difficult sometimes to judge of the progress of the disease but the following points are of value in determining the advisability of getting the patient up: the amount of recalcification and consolidation as shown by the X ray the progress of the deformity as shown by periodic tracings loss of muscle spasm complete absence of fever no demonstrable abscess and no sinus. Probably most important of all is the behavior of the patient. These children lie perfectly happy and contented for months at a stretch during the acute stage and make practically no effort to get up. As the local condition improves the child manifests increasing activity moving first its arms and legs more freely then the head and spine. It finally becomes so active that further restraint is seen to be unwise if not impossible. A brace or celluloid jacket is then made and the child gradually gotten up. The lack of muscle atrophy is surprising in these cases. In fact the muscles often seem to develop as the child improves in bed.

Brauman believes that as a rule little reduction in the kyphos is obtained. Regarding heliotherapy he says that the first exposures should be short in order to avoid sunburn and should cover only a small part of the body. Beginning with the feet for ten to fifteen minutes the area and the time are gradually increased. When one side of the body has been covered the other side may be taken. The total length of exposure varies from a few hours to practically the entire day. Improvement is much more noticeable after pigmentation is established.

The author states that fixation operations should be reserved for selected cases. He always makes a plaster bed before the operation so as to turn and handle the patient without shock or injury. Extreme care should be observed in handling the patient while under an anesthetic as the natural protection of the spastic muscles is lost. Recumbency and external fixation should be continued indefinitely after operation. The operation is confined chiefly to older children and adults cervical and lumbar cases and very young children are excluded.

The author's conclusions are as follows:

Tuberculosis of the spine should be treated as a local manifestation of a general tuberculosis. Rest heliotherapy fresh air and good food are important benefiting the local as well as the general condition. Abscesses should not be operated upon unless absolutely necessary. Fixation operations should be reserved for selected cases.

PHILIP LEWIN

#### Celestin A. Hydatid Cyst of the Vertebral Column (Qui te hidati o de la columna verteb al) *Presa med rge t 9 7 lv 114*

Celestin reports the case of a woman who showed pain in the lower limbs incontinence of urine vesical tenesmus and a flaccid paraplegia and contraction of the lower limbs. Later after a feeling of suffocation she expelled some hydatid vesicles by mouth. Radioscopy showed a clear oval zone at about the level of the sixth seventh and ninth dorsal vertebrae. On operation a focus of osteitis was found in the ninth dorsal vertebra and the corresponding rib on the right side also a hydatidosis with small and multiple vesicles. The ninth rib was resected and disclosed a similar focus existing in the eleventh. A laminectomy was then made in order to examine the medulla the dura mater opened and sutured immediately. The author tamponed the cavity containing the vertebral body no toxic liquids were injected owing to the vicinity of the medulla.

W A BRENNAN

#### Main D C A Case of Injury to the Spinal Cord *M d T 15 19 7 xlv 89*

The author reports the following case:

The patient was a negro 28 years old very robust with no lues present. While loading logs he fell from the top of the loading machine striking the soles of both feet squarely upon a heavy timber. He complained of considerable pain in the lumbar region in both legs and in his feet. He was removed to a hospital put to bed and packed with sand bags. Urinary incontinence was continuous.

Three months after the accident examination revealed an injury to the spinal cord. At the junction of the last dorsal and the first lumbar vertebrae there was a bony ridge very hard and non compressible evidently an impaction of the vertebrae.

Under general anesthesia an incision four inches long was made in the region of the injury. On uncovering the injured vertebrae no line of separation could be found. A laminectomy was done and three small blood clots removed. A year afterward the patient was working in the lumber camp in good condition. Three years afterward he was still engaged in the same work.

C A BOWERS

#### Gonzalez C. Operation and Result in a Case of Spina Bifida (Un o de e pina bifida ope to con ito) *Rev de d v c g p d ct Mad 1 91 xli 16*

Gonzalez reports a case of spina bifida in a child forty four days old operated upon by Suer of the Pediatric Clinic in the University of Valladolid.



tumor after the method of Rowen. The result of this experiment showed that very slight immunity 74 per cent resulted from the procedure while the destruction of the blood supply did not prevent the further growth of the tumors.

In conclusion the authors state that induced immunity to transplanted cancer is not solely due to growth or the metabolic growth of the immunizing agent nor is it due to death and degenerative metabolites of the injected material.

L. C. COLDSWORTH

Crenough R. B. The Handling of Early and Doubtful Cases of Cancer. *J. Surg. Med.* 97:1 385

The author sent out a circular letter to a large number of surgeons in this country in which he asked their opinion upon the removal of small pieces of tissue in suspected cases of malignancy in order to make a definite diagnosis. One hundred and thirty-four replies were received. As a result of the analysis of these replies the author recommends the following procedure in the diagnosis of early and suspected cancer of different organs:

1. In suspected but doubtful lesions of the external skin lip tongue palate tonsil buccal mucous membrane and rectum excision of the entire growth if small should be performed. If large excision of a portion of the growing edge of the lesion followed by cauterization is to be advised only after all other resources of clinical diagnosis including consultation have been employed and then only when the facilities for immediate frozen section diagnosis are available and the operation for carcinoma if it should prove necessary can be completed under one anasthesia.

In suspected but doubtful lesions of the gall bladder kidney prostate testicle and ovary removal of the organ should be practiced since the difference in severity of the possible operations for benign and for malignant disease is not sufficient to make an exploratory incision into suspected carcinomatous tissue a necessary or advisable procedure.

In suspected but doubtful lesions of the lymph nodes in the neck axilla and groin in cases where radical operation is a possibility block dissection of the area involved including the adjacent nodes is to be recommended in preference to the excision of a single suspected nodule. In obviously hopeless cases should cancer be present removal of a single node may prevent a useless operation and is to be recommended.

4. In cases of sarcoma and obscure tumors deeply placed exploratory removal of tissue cannot be recommended except when all facilities for radical operation are at hand immediate frozen section diagnosis then should be secured.

5. To these recommendations may be added the routine pathological examination of all tumor tissues removed by operation. This should be made compulsory and to this end competent labora-

tories for the free diagnosis of pathological material should be maintained as a function of the State.

C. CREWSON

Skiffern P. G. Jr. A Case of Melanocarcinoma Showing Its Stealthy Nature and Rapidly Malignant Course. *Met. & Surg.* 1917:18

Melanocarcinoma exceeds nearly all malignant neoplasms in rapidity and virulence of growth. Second to this are chorio epithelioma and cancer of the tongue.

The patient in the case reported had since birth a black pigmented mole over the left mastoid. About three years ago after a slight injury the mole bled. Thereafter irritating objects which came in contact with the mole caused it to bleed. After these irritations the mole began to increase in size. Two years ago the mole was removed by an operative incision. There has been no recurrence in the scar.

Four months previous to admission the patient noticed for the first time two lumps on the left side of the neck behind the angle of the jaw. One month before admission these lumps became painful. On examination these tumors were smooth and regular in outline slightly reddened sensitive apparently fluctuant and firmly adherent. The diagnosis of recurrent melanocarcinoma was made. Deceptive radical removal of the tumors recurrence followed three weeks after operation metastases to the lungs were revealed soon afterward and the patient succumbed within three months of the operation.

Characteristic of a subcutaneous melanocarcinoma is the inflammatory appearance of the skin which is of a dusky red hue. Care should be observed in incising such a tumor under the mistaken impression that it is a phlegmon.

Histologically melanocarcinoma arises as a migratory hyperplasia of the basal layer of the skin and invades the subcutaneous tissues and distant organs as pigmented and non pigmented oval spheric or spindle cells. The author does not discuss the choice of terms melanocarcinoma or melanosisarcoma but when the neoplasm arises in the skin as in the case to hand it is properly termed melanocarcinoma. For practical purposes it is necessary to perform wide excision of black pigmented moles which are exposed before they have been subjected to trauma.

Guthrie C. G. Experimental Shock. *J. Am. M.* 97:1 394

The attempt has been made to devise a reliable and comparatively simple method of producing shock to establish definite criteria for recognizing the condition and to observe and study at frequent intervals throughout the experiment as many phenomena simultaneously as was feasible the author proceeded on the assumption that the grosser manifestations of shock were to be considered effects rather than causes. Accordingly if the causative mechanism were to be observed it would be most desirable to study minutely the phenomena

immediately preceding during and following the application of the means used for producing shock and to observe the effects of such therapeutic measures as might be indicated by the results.

Experiments were made on twenty-two dogs. The study compared blood pressure, pulse rate and character of motor function, asomotor tone, response to temperature and respiratory volume and composition of peripheral blood, hydogenous concentration, respiratory alkalinity, haemoglobin and haemoglobin saturation, specific gravity, hematocrit and haemoglobin sedimentation from which the results in the composition of the blood, a regard to the volume of plasma and corpuscles, the estimations of relative changes in the total amount of blood, and timing of the total blood continued in the vessels of the limbs, and in the circulation of the blood, its isotonic pressure, the position of the turning point of blood temperature, and conductivity of the blood, its specific gravity, eye temperature, comparative studies, and conditions observed in the shock condition following the administration of cerebral natrium. The first of remedial measures, respiration, and the increase of blood pressure by occluding the aorta, elevation of the posterior part of the thorax to facilitate the flow of blood to the heart and administration of drugs including pinphrine, atropine, sodium boron, and other drugs, the use of a boned dog.

The author attributes the characteristic of the condition to the mechanical, vascular, and pulmonary centers, due to the position of the respiratory ventilation and the mechanical factors of the respiratory system. Though all of the blood in the respiratory system is closely related to the development of the lowest apical pressure, and the high return flow of blood to the heart rather than venous dilatation is more comprehensive, the condition from which the position of the thorax is the most important factor in the position of the thorax, the position of the thorax is the most important factor in the position of the thorax.

Treatment with the treatment of the respiratory system yielded good results. The treatment of the respiratory system yielded good results. The treatment of the respiratory system yielded good results.

There is a possibility of restoring an adequate tissue circulation, but it is difficult to force irreparable tissue injury had occurred led to recovery. Such measures, Guthrie states, should be preferably of a mechanical nature, as elevation of the posterior parts of the body, the use of increasing a return of blood to the heart, adding a hydrostatic factor to the cerebral blood pressure, increase of peripheral resistance as by aortic compression and particularly when associated with severe hemorrhage, increase of blood volume by transfusion of blood or the intravenous injection of isotonic non-toxic solutions of sodium chloride.

Theoretically and from the standpoint of increase in blood volume, only a section of hypertensive conditions could be indicated. The recent observations of Sansum of the marked increase in arterial blood pressure associated with and following intravenous injection of strongly hypertonic glucose solutions have suggested.

Temperatures should receive attention, but the main indication is promptly to institute treatment in the late cerebral circulation.

In the case of dogs, the results have been that the peripheral circulation is traversed by the peripheral state and augmenting the return of blood to the heart by direct action on the blood.

It is to be noted that the consideration of the treatment of the shock condition is to meet the physiological conditions of the shock condition. The physiological conditions of the shock condition are to be met by the physiological conditions of the shock condition. The physiological conditions of the shock condition are to be met by the physiological conditions of the shock condition.

Findings of J. and Woodruff, R. T. Intravenous Injections in Shock. J. of the A. M. A. 9: 1-4.

On the other hand, the experimental groups of shock produced by mechanical means would appear that the use of injection of glucose at appropriate rate of injection, but in certain phases of shock (the) the results are usually at rates varying between 14 gm per kilogram per hour for 10 to 20 minutes into the thoracic dogs, reduced to the level of the partial temporary closure of the thorax or the thorax has been observed for the increase of the mean arterial pressure.

The injection has uniformly produced a marked increase in the pulse amplitude and rate, and the increase in the pulse amplitude has usually been more striking than the increase in arterial pressure. In one case the increase in pressure was determined by the injection of glucose, and the effect of the injection of the glucose was approximately the same.

A total of 12 cases of the arterial pressure and the pulse amplitude as effectively as many of the injections made at more rapid rate. With the more rapid injection, a marked hemorrhage tendency may develop in animals in this condition. No other palpable deleterious effects were observed. E. R. L. CORRELL.

Bayliss, W. H. T. Treatment of Shock by Intravenous Injection (L. T. M. T. D. H. K. P. 1). J. of the A. M. A. 9: 1-4.

Bayliss refers to states of shock especially characterized by lowering of the arterial pressure. In hemorrhage, the most logical treatment is to place

the lost blood. In the fluid employed two properties are indispensable, i.e. viscosity and the osmotic pressure of colloids. In animal experiments the author has found that if the blood pressure be reduced by the extraction of a certain quantity of blood the pressure is only partially re-established if the same quantity of Ringer's solution be injected.

However, if 6 per cent of gum arabic be added to the solution the blood pressure is completely re-established. Other substances such as gelatine give the desired viscosity to the solutions but for various reasons they are not so suitable as gum arabic. Moreover, a 6 per cent gum arabic solution has the same osmotic pressure as blood. The oedema which is usually manifested sooner or later with the use of Ringer's solution alone does not occur when the gum arabic is added to it. The gum arabic is easily sterilized by boiling. A 4 per cent solution of gum with 0.9 per cent of chloride of sodium has been found excellent for experiments with cats and a concentration of 1 per cent has been successfully employed in man. No anaphylactic effects have followed the use of gum in animal experiments.

The author considers the use of the solution in shock due to conditions other than hæmorrhage where there is strong concentration of the blood.

W. A. BRENNAN

**Amberg S. Loevenhart A. S. and McClure W. B.**  
The Influence of Oxygen upon Inflammatory Reactions. *J. Pl. col. & I. tp. Th. rap.* 1917, 209

The authors conclude that intravenous injections of the sodium salts of Oiodoso and Oiodoxy benzoic acids inhibit the mustard oil reaction of the rabbit conjunctiva as well as that of the skin. No other visible changes in the organism accompany this inhibitory action. Other substances containing chemically active oxygen such as the sodium salts of dipthallic peroxide, iodic and periodic acids have an inhibiting action on the mustard oil inflammation.

It seems reasonable to ascribe the inhibiting action of these substances to the chemically active oxygen. Exposure of rabbits to atmospheres with reduced partial pressure of oxygen did not have any marked effect on the intensity of the intracutaneous mustard oil reaction. Intravenous injections of sodium cyanide seem capable of intensifying the conjunctival mustard oil reaction under proper conditions. Within certain limits an influence on tissue oxidation seems to determine an inhibition or intensification of the response to inflammatory stimuli. It seems possible to alter the character of the conjunctival mustard oil reaction by intravenous injections of substances such as sodium hypochlorite. Irritation produced elsewhere in the organism as by intraperitoneal injections of kaolin, animal charcoal and mustard oil may exercise an inhibiting influence on the conjunctival mustard oil reaction of the rabbit.

MAX KAHN

**Kermission E.** Infantile Surgery. *Med. Press & Circ.* 1917, CIV, 329

The author reports two cases of Meckel's diverticulum, one in a boy of fourteen who was admitted as a case of appendicitis. The contrast was marked between his excellent general state and the distention of the abdomen which suggested an intestinal obstruction. On opening the abdomen a large quantity of yellowish serum escaped. The cæcum came into view and could only with difficulty be drawn out, being strongly adherent farther down. The appendix which ran in the direction of the true pelvis was resected.

The index finger passed down toward the brim of the pelvis felt a mass of intestinal loop bound together by a constricting band. A Meckel's diverticulum was found measuring 1 or 8 cm. in length, the caliber of the small intestine. It was attached to the free edge of the latter some 5 cm. above the ileocecal angle. From the top of the diverticulum ran a fibrous band containing an artery and two veins, the other end of which was inserted into the free edge of the intestine a few centimeters above the point of implantation of the diverticulum. In the loop thus formed a piece of small intestine was fixed but was not very tightly constricted. The band was divided between two ligatures but in view of the size of the diverticulum it was not resected in order not to unduly prolong the operation. The sequelæ were uneventful and the patient left the hospital in a few days.

Two months later the patient was seized with pain in the abdomen. Bowel movement was accompanied by sickness. On the strength of the information gained at the previous operation it was decided to open the sheath of the right rectus muscle. Some loops of intestine bound together by adhesions were discovered. After breaking down these adhesions the diverticulum itself was recognized in one of these very adherent and congested loops. After freeing it from its adhesions it was pulled outside the abdomen with a eptic gauze. A forceps guarded with rubber tubing was applied to the base of the diverticulum which was crushed close to its point of insertion and was then divided with the electric thermocautery. A continuous suture was run around the edges of the divided gut and over this a seromuscular Lembert suture. The various adhesions that had been divided were tied with fine catgut. The peritoneum was carefully cleansed from blood and serum and the walls were sutured in three layers after placing in position a drain to be left 48 hours. Recovery was uneventful and the patient left the hospital in four weeks.

The second case that of a male infant eight months of age in good general health was brought in with a stercoral fistula of the navel. The fistulous orifice rested upon a small rounded tumor of a bluish red color which when the child cried increased notably in length in consequence of the prolapse of the intestinal mucosa. The child was operated upon beginning by the application of a ligature around the base of the tumor in order to





experiments to be made and measurements to be made when necessary with paraffined pipettes.

The experiment was conducted by dividing the same specimen of blood into tubes of the following diameter 1 mm 4 mm 9 mm and 17 mm at room temperature. In 1 mm tubes retraction was abundant in half an hour and the yield of serum was 56 to 59 per cent. In 4 mm retraction was noticeable at the end of an hour with a yield of 29.2 to 30.7 per cent of serum in twenty-four hours. In the 9 mm tubes there was but slight retraction at end of four hours with a yield of 6.3 per cent to 15 per cent serum in twenty-four hours. In the 17 mm tubes no retraction occurred in twenty-four hours and there was no serum.

The author states that blood collected in capillary tubes always contracts completely yielding the full theoretical amount of serum. In most cases it commences in less than fifteen minutes and is complete in one half hour. In tubes having a diameter of 3 to 4 mm retraction generally takes place and is usually complete but occasionally is only partial and is much slower than in capillaries. In Wassermann tubes retraction is the rule but there are occasional exceptions action is much slower and not complete as a rule in less than twelve to twenty-four hours. In large test tubes it is frequently absent always slow and often incomplete.

In general the newer and cleaner the vessel the easier and quicker is the retraction. A clot will not detach itself from a paraffin lined tube. The author does not think that a clot formed in a living vein retracts from the walls never having seen an example in sections of thrombosed veins.

If a freshly formed clot be suspended in air the process of expression is very rapid the contraction of the fibrin being assisted by the force of the serum but if the clot remains in the serum this assistance from gravity is very much less. In narrow test tubes the clot remains adherent by a rim of attachment at its upper angle of contact with the wall of the tube. Retraction always begins at some point on the side and continues until every point except this rim of attachment has detached itself from the wall. Such a clot has a wide top a narrow neck and a wider base which is often almost as wide as the tube and may in some cases be almost spherical. The shape is due to the action of gravity on a soft mass originally cylindrical which is lifting itself up by the contraction of its surface membrane.

When the clot is first formed it has a specific gravity of 1.056. As soon as retraction commences some of the serum which is lighter (specific gravity 1.030) escapes. As the clot shrinks specific gravity rises ultimately reaching almost 1.100.

In large vessels the rim of attachment will not hold and the clot sinks to the bottom. This is because the length of the rim increases only proportionately to the diameter of the vessel while the weight of the clot rises in proportion to its cube. Gravity assists in that the upper part of the clot presses on the lower and tends to press out the serum

but the conditions are much less favorable for the clot may be pressed against the walls of the vessel and the serum be prevented from escaping also the compressing force exerted by the upper part of the clot tends to counteract the contraction of the lower part.

The nearer the temperature of the vessel to that of the body the quicker and more complete will be the retraction. Retraction is hastened at incubator temperature. In an ice chest retraction is usually absent or very slight in anything larger than a capillary tube and may be incomplete in these. A point of considerable importance is that the temperature to which the blood is exposed when first drawn is of chief importance in determining the rate and completeness of retraction. In order to collect as much serum as possible the blood should be collected in warmed tubes and incubated as soon as possible. After an hour or two it may be kept at room temperature but the ice chest should be avoided until retraction is complete.

There are two methods for obtaining a very full crop of serum.

1. A test tube is bent about the middle to an angle of 135° after it is sterilized a small amount of melted paraffin is poured in heated and the tube kept upright until it is cold. When set the paraffin will form a layer at the bottom of the tube. The tube is filled with blood short of the angle and kept upright in the incubator until coagulation has taken place. Then it is slightly tilted on the side so that the serum may draw into the angle. In a test tube containing 8 to 10 cc. of blood retraction will usually be complete in two hours or less and the clot will stick to the paraffined surface of the tube.

2. Another method is to paraffin the side of a flask. The blood is allowed to clot in contact with this surface the flask being kept on its side. When coagulation is complete the flask is turned so that the blood is uppermost. The serum will be very rapidly expressed and will form a pool on the opposite side of the flask.

V C HUNT

Nuzum J W and Willy R G. Specific Serum Therapy of Epidemic Poliomyelitis. A Report of 159 Cases Treated with Antipoliomyelitic Horse Serum. *J Am Med Ass* 1917 LX 1247

The mode of production the technique of administration and the results obtained in a series of 159 cases of epidemic poliomyelitis treated with antipoliomyelitic serum prepared in the horse by injections of the poliomyelitic cocculus are reported. These patients were treated in the Cook County Hospital during the epidemic which prevailed throughout the summer and autumn months of 1917 in Chicago.

The authors point out that the detection of neutralizing substances in the blood serum of both monkeys and human beings following an attack of poliomyelitis and the observations of Flexner and Lewis on the protection of inoculated monkeys by means of injections of serum of recovered monkeys



**Culver H Antibodies in Gonococcal Arthritis**  
**After the Intravenous Injection of Specific and**  
**Non Specific Protein** *J Lab & Clin Med* 191  
 III 1

Primary and secondary proteose preparations stimulate antibody production or mobilization for specific organisms in gonococcal arthritis in a manner not to be distinguished from that produced by the injection of the specific organisms themselves. In gonococcal arthritis there is either no change or a decrease in the antibody content of the serum within the first twenty four hours following an intravenous injection except in the case of the first injection when the lytic substances seem to be slightly increased during this time.

In favorable patients the first injection usually causes the greatest clinical benefit. It would seem that there is no one particular factor which is responsible for the benefit derived in favorable patients but a series of events occur which when acting together or in succession tend toward the relief and ultimate recovery of the individual from the infection. MAX KAHN

### BLOOD

**Kerley C G The Treatment of Secondary**  
**Anæmia in Infants by Blood Transfusion** *Im*  
*J Obst N Y* 1917 LXVI 713

The author reports eight cases of blood transfusion because of simple secondary anæmia or because of anæmia and malnutrition. The blood was usually obtained from the father or mother after physical fitness was demonstrated by the absence of agglutination and hæmolysis.

The technique was simple. Blood was withdrawn from a vein of the donor into a syringe and injected directly into the vein of the infant. The syringe was washed out with sterile salt solution before being refilled with blood.

The results in all cases were satisfactory with one exception. In one case a second transfusion was done after a thirty day interval.

The children were all under two years of age. Marked improvement in the digestive capacity and general health was noticed. W L BROWN

**Depage A and Govaerts P The Hæmatologic**  
**Indications for Immediate Transfusion Fol-**  
**lowing Injury** (Les indications hématologiques de  
 l' transfusion immédiate dans les premiers heures  
 après une blessure.) *Bull et mém Soc de Tr de*  
*lar* 917 11 274

The authors made a systematic hæmatologic study of 47 cases of severe limb injuries such as fractures vascular wounds etc. Thirty two cases examined in the first six hours following injury showed more than 4 000 000 red globules per cubic millimeter of blood. By the third day the posthæmorrhagic anæmia reached from 2 400 000 to 3 000 000. Four of these cases died of acute infection 2 from true hæmorrhage. Fifteen cases examined under

aseptic conditions showed less than 4 000 000 red globules. Fourteen of these died from hæmorrhage in less than twenty four hours.

The authors therefore conclude that it is a symptom of an almost surely fatal hæmorrhage if in the first six hours after injury the red count in the venous blood descends below 4 000 000. In such cases the injection of artificial serum is impractical and under the circumstances a blood transfusion is absolutely indicated.

These results apply only to fractures. In visceral lesions there are other factors and the results of blood analysis are more delicate. The figures apply only in the case of adults in good general condition such as soldiers. The authors take the following as indicative of a severe hæmorrhage and calling for blood transfusion: less than 4 500 000 red corpuscles in the first 3 hours after injury; less than 4 000 000 red corpuscles in the first 8 hours after injury; less than 3 500 000 red corpuscles in the first 12 hours after injury.

The authors exhibit a tabular statement of 14 cases treated by transfusion. Three of these patients died from acute infection which had set in shortly after injury. Among the 11 others there were 8 complete successes. One of the failures was due to hæmoglobinuria and the two others were due to an insufficient amount of transfusion. In desperate cases this quantity should be doubled. W A BRENNAN

**Sanczyoski S The Viscosity of the Blood in Exper-**  
**imental Anæmia** (Ueber Blut viskosität bei der  
 experimentellen Anæmie) *Mitt a d med Fakult*  
*d k Univ zu Tokyo* 1917 1 40

Subcutaneous injections of phenylhydrazin were made in rabbits for the purpose of producing anæmia and studying the viscosity of the blood and its effects. The author finds as the result of these experiments that though the blood viscosity fluctuates principally according to the number of blood corpuscles and the hæmoglobin and gas contents yet high viscosity values occur during anæmia with relatively few number of blood corpuscles and small hæmoglobin content. This relative increase in the blood viscosity is especially noticeable in rabbits rendered anæmic with phenylhydrazin.

One of the principal causes is a certain substratal change in the erythrocytes. The change is demonstrable from the sediment in hæmolysis and from the marked tendency of the erythrocytes to appear agglutinous in progressive anæmia.

Cases exist moreover where the plasma viscosity which is a rule is almost constant is increased causing in turn a distinct increase in the total viscosity of the blood. Finally cases occur where the total viscosity is increased though neither erythrocytes nor plasma have had any influence upon the viscosity increase.

Whether the viscosity increase is to be considered as a real compensatory process in the mechanism

the circulation disturbed by the anemia or merely as an accompaniment of other important symptom of anemia cannot be definitely stated.

The impression is that the organism under consideration deviates from the normal on account of the highly polytropic nature. But the tendency to return to normal only so long as the organism possesses certain factors. This according to certain extent the case of Gomori-Habermas-Derman type of hypomyelination of the peripheral nerves.

W A B E N

Mors J L and W hlb h S B A C se f P  
n c ous An'em n a Boy f F ght Ye f  
J D Clld 9 7 3

The author presents in full the history of the eight-year-old suffering from primary Addison's disease. The diagnosis was made rapidly, although no accurate blood determinations were suggested by the clinical features of the skin but the absence of profound nuchal rigidity, normal systolic pressure and apparently normal temperature had to be taken as evidence of no adrenal insufficiency. The pigmentation moreover could be explained as the result of blood destruction.

The argument of the h t m r m r o the  
he r t and n th k h g h p i l e p c l o t r  
v d n e s o f o t i c l l i a p p a d n o t t o b  
l u e t o o r g n e d e b u t t o m c u l r w k n s s  
a n d v s o n o t o r n i t n y

and a very good example of the use of the word "diagnosis" in the medical field. The word "diagnosis" is a noun, and it is used to describe the process of identifying a disease or condition. The word "diagnosis" is derived from the Greek word "diagnosis," which means "to distinguish" or "to identify." The word "diagnosis" is used in many different contexts, and it is a very important word in the medical field. The word "diagnosis" is used to describe the process of identifying a disease or condition, and it is a very important word in the medical field. The word "diagnosis" is used to describe the process of identifying a disease or condition, and it is a very important word in the medical field.

1 C R 15

## BLOOD AND LYMPH VESSELS

Maternal	Infant	Artificial	Wound	With	Ex
tern	1 Haemorrh	g and	Her S	g c I	ent
ment	(L pl	t ll		hém h g	
t	t l	t t m t	t	g l)	L o
/	g a 7	68			

The arterial lesions observed in a rat may be placed in two categories: those which considerably external hemorrhage is immediately manifested and those without external hemorrhage the so called dry vascular infarcts. The author deals with the latter variety in 3 cases of which he has observed and operated upon

The author treats the pathological anatomy and physiology the symptomatology and treatment at length. The clinical types are conformable to the anatomic types and a divisible into three groups (a) those showing symptoms of arterio-venous fistu-

lae (b) arterial wounds or arteriovenous wounds with  
d ff ise hæmatoma (c) traumatic aneurysms

The 3 cases observed by the author comprised 1 traumatic aneurysm 5 arteriovenous fistulae 21 arterial or arteriovenous wound with diffuse haematoma. There were 30 recoveries 2 deaths and 3 amputations.

The technique consists in ligation of the vessels above and below the injury, resection of the aneurysm, and removal of the intermediate segment, evacuation of the hæmatoma, liberation of the nerves, etc. Each of these steps is described in detail.

The author emphasizes the necessity of early operation which should be performed before the formation of an aneurism, the importance of the minor symptoms which often reveal the existence of a vascular injury and the necessity of acting by direct operation at the site of the vascular lesion and not by a distal ligature.

W. A. BRENNAN

Ohsner A J Vajcose Wins of the Lg Sg  
Cl Cl g 97 9

Ohsner performs the Nussbaum operation for the  
ulcer. This is on that encircles the  
ulcer and the incision from its margin al-  
lows removal of the incision united with horse  
hair sutures. Then the Mayo operation is usually  
performed. A small incision 6 cm above the internal  
opening of the knee made exposing the internal  
sphincter. A slitting doubly through the dis-  
tended through a Mayo venous strip and to cut  
the venous trip down the leg to the vicinity of  
the external malleolus. Here a small incision is  
made and the vein which has been separated is re-  
moved.

In these cases, especially if there are several masses of ricoid vessels along the anterior surface of the tubercles, it is necessary to make a long incision and dissect out the masses *en bloc*, the vein being situated fully.

As a further assurance that all the veins are divided off, in addition the Schede operation which is a special incision of the leg. All veins

lig ted s th y ar d id d A brdg of ski of  
at k t 3 m should be lft b t en the prals  
All th inc ion yr then t red a snug b ndage  
applied d the leg kept in an elevated positio  
45 d gre After th v o nd h e h l d v hich r  
quir s about t v o cks the l g is encased in a  
Un a past 1st Th an be left on fo from s  
to fou te n w ks In som cases in wh h the ves  
are not mu h cnla g d but an ulc r is f se t the  
limb s k pt levat d nd moist borc at d applica  
tions are made til th ulcer appears healthy at  
v h h tim sk a graft is done T n d ys o t v o  
v ks lat U n a s p te b t s applied ha ing  
a undo at th sit of the graft

In other non-operative cases a patellar boot is applied and reserved as necessary. The results are better than with the use of an elastic bandage.

II IRLANDE

Flessinger N and Clogne R The Proteolytic Power of the Normal Polynuclear Leucocytes of the Circulating Blood (Etude sur le pouvoir protéolytique des leucocytes polynucléaires normaux du sang circulant) *Ann de méd int* 1917 iv 445

The proteolytic index of polymorphonuclear leucocytes has been studied but only with regard to the leucocytes contained in pus. So far as the authors know a similar study has not been previously made with regard to the proteolytic power of normal leucocytes in the blood stream. The authors have made such a study and review their findings thus

1 Whatever proteid matter may be used when the emulsion of leucocytes has reached the boiling point the amount of nitrogen formalin produced is nil or is not enough to be taken into account

The amount of amino acids produced is proportional to the concentration in weight or volume of albumin in the proteid solution

The amount of nitrogen formalin produced is proportional to the number of polymorphonuclear leucocytes in the test tubes. The progression is not regular and is not so marked in strong concentrations as in weak concentrations. The amount of nitrogen formalin varies in inverse ratio to the concentration of the leucocytes

4 Proteolysis takes place progressively between the twenty fourth and forty eighth hours. Vapors of formaldehyde, toluol and chloroform do not interfere with the diastatic activity, as is the case when the emulsion of leucocytes has been kept for a long time in 90 per cent alcohol or when it has been heated above 60° C

5 There is no appreciable change in the activity of the proteolysis during the period of digestion of the individual

6 There is a considerable decrease in the proteolytic activity of leucocytes during the restoration stage in anaemia secondary to hæmophilia

7 Tests show that the amount of non coagulable substances increases proportionally to the number of leucocytes

W A BRENNAN

## POISONS

Scalone I Some Cases of Malignant Non Gaseous Gangrene (Note su alcuni casi di edema maligno non gasoso) *Pichn Roma* 97 xxiv se chir 433

From the Italian war front Scalone reports 5 personal cases of gangrene consecutive to gunshot wounds which do not correspond with the classic picture of gaseous gangrene. These are malignant oedematous cases which in the early stages show neither gas bullæ nor signs of gangrene. The five cases had certain similarities: (1) Severe infection developed in relatively light injuries (2) the wound in all cases involved the muscular tissues producing severe bruising and injury (3) the wound was necrotic with detritus and putrid exudations (4) oedema was the most constant and important

symptom (5) there was absence of the production of gas (6) gangrene was not a constant symptom

The oedema was hard and diffuse extending from the periosteum to the skin. The skin was of a whitish porcelain color. Gangrene was entirely absent in two of the cases and in one case was local and circumscribed. In all 5 cases death occurred suddenly after symptoms of heart failure, the condition although grave gave no previous indication of an impending catastrophe

The author made bacteriological examinations in these cases and the findings appear to correspond to those described by Siquepe as predominant in the special form of gangrene known as malignant gaseous oedema. Scalone describes the condition as an acute infection of malignant character with a fatal prognosis, the earliest manifestation of which is oedema. It cannot be considered as gaseous gangrene and appears to be more nearly a white cryspelas. The term non gaseous malignant oedema might justly be applied. Such cases are much less numerous than those which correspond to the classic gaseous gangrene, but the classification of gangrene should commence with this non gaseous form. It is very probable that further investigation will show that a different microbic agent corresponds to the different clinical types of gangrene

The author was able to save the life of one patient by an early amputation of the thigh. The other four patients died. In similar cases he recommends early amputation before the second or third day. Wide opening up and stripping of the wounds gives no result

W A BRENNAN

Douglas S R and Colebrook L Studies in Wound Infections: the Growth of Anaerobic Bacilli in Fluid Media Under Apparently Aerobic Conditions *J. Hyg. Lond.* 1917 ciii 30

The author reports a series of experiments in which anaerobic organisms were grown under practically aerobic conditions. It has been known for some years that the addition of a piece of animal or vegetable tissue to fluid media has a beneficial action on the growth of anaerobic bacteria

Tarozzi first pointed this out and used small pieces of kidney or testicle. Ori and Wrzosek used pieces of vegetable tissue. Wright and Dreyer used tubes of broth to which a piece of potato had been added previous to sterilization. It was found that anaerobes would grow even if a stream of oxygen were passed through the fluid portion of the media. The general explanation given was that the animal or vegetable tissue contained some body which acted as a reducing agent

The authors repeated the experiments and obtained the same results as other investigators but they experimented further and found that anaerobes could be grown if carrot, cabbage, grapes or bran were added. It was thought that possibly some food substances such as vitamins might be given up which enabled the anaerobes to proliferate. To

verly ths exp riment w made in huch an  
alcoholic extract of brn add d to the broth  
both dir ctly and with at rated hlt r pper The  
result er confl t g but t a found that th  
best growth is obtain d wh re a consid rable  
amount of the sold extr t as add d growth  
equally bu dnt found n the onrol tubes  
where untre t d hlt r pper is dd d The idea  
was th n abandon d th t th go th w d to any  
food substance

who h ous i rt b t a i s c u d i n t a d of  
 vegetable t i b t o s a l o t t n o o l i n t  
 sponge h i r o i l a l k o k a n d r d b o r d  
 blotting pap k l k l o t h a d r t i l t h e  
 result h o v e l t h t v t m i n r t b t a n  
 r a n d r d t h m d i a t a b i t r t l g t h f a n  
 aerobic org n n w t h o u t u r t h r p u r t i o n s  
 the ex p l t o n a t l t t h r b i n r l o d g  
 in the m s h o f t h i r t b t n d t h  
 a b l e t o p o d u n a o b c o n d t o l l y t h e  
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Other per m nt ho d th t t amo nt and  
onsi t n y of th s b t n d ha d t bearing  
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Zin ss H and Pa k J T B t l Anaphy  
l x and Inf t n J I p M d o v 4

An analysis of bacterial physiology and its relation to the occurrence of the malady during infection. The authors showed that the infection is transmitted by guinea pigs as indicated by the isolated virus requiring from the host the development of a sensitive reaction with employment and the condition with bacteria is sensitization. The virus is not to be revealed from the rumen by Dalad. Weil. It becomes apparent that the sediment is rejected not at all with the bacteria. The whole reaction is other words before reaction with sensitivity. The organisms took place in the fraction or solution of the bacterial cell or current. That bacteria would yield some of their substance to the ultimate blood during the course of infection as predicted by us and finally indicated by the complement fixation.

The mechanism of injury in the sensitized animal or in the human being so far advanced in type of fever that antibodies began to develop is a part one in which antigen derived from the bacilli and brought into suspension in the fluid serum reacts with antibodies which are from the beginning or subsequently become integral parts of the cell protoplasm the entire process taking place within

the cell. This latent point is indicated by the fall in sensitivity by simply soaking the normal uterus in antiserum.

This however cannot be the entire story of injury. It is known that thyphoid antigen injected into normal animals in moderate amounts will illend them gradually sick and eventually kill them. Also a sufficient amount injected into a normal animal will occasionally produce acute symptoms in every respect similar to the reaction produced in sensitized animals by small doses. The authors have shown that such acute symptoms in normal animals are not due in any degree to tissue sensitiveness since enlargement of quantity of antigen produced no response on the part of the normal uterus. They therefore consider reasonable the supposition that the very gradual or acute in the normal animal is not responsible for the tissue sensitiveness to the whole antigen but rather must be referred to some series of phenomena which occur in the circulation. The acute block of normal animal may possibly be due entirely to an intravascular reaction. Whether this reaction is one of antigen-antibody or of antienzyme removal is a point on which the experiments throw no light.

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te toxic symptoms either in the whole animal  
or in the olat dut rus by mea s of serum from  
him is ut ly li Thi is eliminated as negati

I nce i smuch a the toxc b tance n d at  
 no gi n time be pr s nt i the blood tream i  
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 symptoms dev l p

The gradual loss of the normal animal's defense capacity to shock of these animals may be based on a relatively different mechanism the authors state at least this possibility cannot be denied on the basis of my experience at which they have been able to give. In both cases however in normal animals the condition seemed to be intravascular and the symptom of a uterine shock which occurred during the production of males in the modified doses seemed to be a glomerulonephrosis produced in normal animals the larger doses than the supposed that the points produced intracellularly in the one may be similar to those produced intravascularly in the other. It did not seem probable that the specific circulating antibodies were in any way source of increased injury to an animal spontaneously infected with bacteria. If sufficiently powerful at the beginning they prevented tissue injury first by accelerating phagocytosis then by producing intravascular gelatinization and finally even by removing a part of the antigen from possible reaction with the cell though in this respect the experiments indicated that the antibodies functioned imperfectly. It more probable that their effectiveness to the sensitive body lies in removing the whole bacteria from the possibility of

intravascular disintegration which is prerequisite to anaphylactic injury of the tissues of the host

Tentatively, the authors summarize their opinion as to the occurrences in the typhoid infected body as follows. Early injury was probably due to disintegration of part of the bacteria in the course of which albumose like bodies were liberated and following which intravascular reactions resulted in the formation of toxic substances perhaps by some form of proteolysis. Since the accumulation of bacteria during these stages was relatively slight this form of injury probably played little part in producing symptoms. The experiment by which acute injury was produced in the normal guinea pig by the sudden injection of several times the lethal dose of partly dissolved bacteria found no analogy in the spontaneously diseased body. At this time the tissues were not sensitive but as antigen absorption progressed and the tissues were stimulated to react sensitivity developed which rendered them much more delicately amenable to injury by direct reaction even with small amounts of dissolved but otherwise unaltered antigen. This process was directly counteracted by circulating antibodies which tended to prevent the bacteria from yielding their antigen to solution by agglutination by aiding phagocytosis and to a slight extent even by neutralizing dissolved antigen.

It seemed probable that the symptoms which appeared as the incubation time ended were largely those due to cellular sensitization which probably began before any considerable amount of circulatory antibodies was present. The circulating antibodies seemed to have little or nothing to do with intravascular injury, the ferments responsible for this probably consisting of the non specific proteases studied by Jobling.

Cure consisted of a gradual checking of growth and final destruction of the bacteria and the consequent cessation of antigen liberation but delicate hypersusceptibility persisted for some time after cure and immunity had been established. Just what the relation between tissue hypersusceptibility and immunity is remains a problem for further study.

GEORGE E. BELLBY

#### SURGICAL DIAGNOSIS PATHOLOGY AND THERAPEUTICS

Pyman F. L. and Wenyon C. M. The Action of Certain Emetine Derivatives on Amœbe. *J. Pharm. & Therap.* 1917 37

The authors draw attention to the fact that emetine has been largely employed for the treatment of amœbic dysentery and has proved to be of great value. It seemed possible to them however that some derivative of emetine or one of the other alkaloids associated with it in ipecacuanha might prove to have a relatively greater toxicity to amœbæ than the parent substance. This led to a preliminary survey of the relative action of the alkaloids of ipecacuanha and some of their derivatives on

amœbæ from which it was also hoped to find some relation between the chemical constitution and the amœbicidal action of these substances.

The amœbicidal action of these compounds was tested by incorporating their aqueous solutions in the medium upon which the amœbæ were inoculated. The medium was an agar mixture Walker's medium upon which the amœbæ grew luxuriantly when the drug was absent the amœbæ was one which had been recovered from water and was of the amœba limax type.

In the first series of tests there was no inhibition of amœbic growth with a dilution of 1:100,000 but four drugs showed complete inhibition and one a partial inhibition with a dilution of 1:10,000.

In the second series the drugs used in the first series were again tested in addition to others. The results obtained divided the substances into three groups.

1. The salts of emetine, cephaeline, N-methyl emetine, N-methyl cephaeline and N-methylemetine methene were approximately equally amœbicidal.

2. N-Methylemetine methochloride, rubremetine hydrochloride, the hydrochloride B and noremetine hydrochloride were inferior to those of the first group in amœbicidal action.

3. Psychotrine sulphate was much inferior to the substances of group 2.

GEORGE E. BELLBY

#### Colcord A. W. The Treatment of Minor Injuries

*I. Intern. J. Surg.* 1917 3

In the treatment of minor injuries a rapid examination is made with a view to three things: (1) to stop hæmorrhage, (2) to combat shock, (3) to relieve pain. For the first the tourniquet or pressure bandage is used. The pain and shock may be relieved by one fourth of a grain of morphine and one sixtieth of a grain of atropin. If shock is very severe the patient is placed in a comfortable position on a well padded operating table. External heat is applied. The wound is not touched but is first covered with cotton or gauze wet with a 1:2,000 cyanide solution. Strict aseptic conditions are observed regarding instruments, hands and gown. The skin around the wound is then scrubbed with sterile water and liquid soap and all hair is shaved from the surface. Foreign bodies and all visible dirt are removed, bleeding vessels are ligated and shreds of flesh cut away. The wound is then irrigated with hot sterile water. After covering the field well beyond with sterile towels the wound is sutured, drained if necessary and covered with sterile cotton and bandages if near a joint a splint is applied. Dressing wet with Obernier's solution or Dakin's fluid is kept over the wound for a few days until all danger of infection is past. Where the wound is deep and large Dakin's fluid is used according to the Carrel method.

Over six thousand consecutive wounds have been treated with Obernier's solution without infection. The author now uses Dakin's fluid almost entirely and the results are highly satisfactory.



If a finger is badly lacerated Colcord advises the use of a wooden splint. In the case of the hand wrist or forearm a woven wire splint or a white pine splint is advised and the whole forearm put in a sling. If the foot is badly lacerated he uses a cotton splint if the ankle he uses a cotton or wire splint and elevates the leg. When a finger is badly crushed and it is feared that amputation may be necessary he lyses the mangled parts carefully in position on the forearm and splint and applies constant wet dressings. He does not sterilize immediately but keeps the part warm and places the limb in a sling or puts the patient to bed with the arm on a pillow. He applies sutures from twenty-four to forty-eight hours after amputation stabilizes then amputates those parts where there is no circulation.

Colcord gives various methods in the use of sutural material together with some hints on bandaging and the treatment of special wounds.

I C K 18

### EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Ma in D and Manly O T Transplantation of the Thymus in Rabbit Relative of the Thymus to Sexual Maturity *J F H Cl*  
*Id 9 148*

The authors have attempted to obtain more definite data on the transplantation of the thymus and to study its behavior in relation to sexual maturity and breeding.

The thymus normally undergoes atrophic atrophy or involution at puberty. It is well established by Patton and Goodell Henderson Calzolari and others that most of the gonads before puberty develop thymus involutions that thymus remains histologically immature rabbits and that animals allowed to breed show involution of the thymus without doubt.

In the thymic preparations they removed all the main thymic mass exposing the gland by splitting the sternum to the third rib exposing the upper portion of one of the cartilages and a transplanted small fragment of 3 mm into the subcutaneous tissue of the abdomen. Contrary to the conclusion of Penton that transplantation in the subcutaneous tissue did not survive they found that the thymus could be readily reimplanted in the location in sexually immature rabbit. Whether the peritoneal or subperitoneal tissues still more favorable as some authors state they have not yet determined.

As with the splenic autotransplants survival immediately after thymic transplantation was observed in two autotransplants were placed in the subcutaneous tissue of the abdomen of a half of 8 rabbits. Each rabbit was between three and one half and four months old. Six of these rabbits were observed for three months and the transplants survived directly at monthly intervals. Two females were kept until

one of the males. Examination at the end of the first month showed that both were pregnant. This is earlier than rabbits usually breed. At the gross examination the transplants in all three seemed negative though the enlarging breasts made the examination unsatisfactory. One transplant area was removed from each and examined histologically. In one female there was an active transplant. In the other female and the male the transplants had undergone nearly complete absorption. Of the remaining five died before the end of the first month. The remaining three two females and one male had the transplants the male and one female having large 4 mm transplants showing clearly that growth had occurred.

At the beginning of the second month the female with the large thymic transplants was bred and at the third month these transplants could not be found although on account of the lactating breasts the examination was not satisfactory. The male with large transplants at the end of the first month had a transplant possibly larger than at the first examination. The unbred female also had duct transplants.

The preliminary experiments showed that sexually immature rabbit fragments of thymus autotransplanted into the subcutaneous tissue of the abdomen of thymicotomy may survive and grow. Therefore although sexual maturity in confirmation of the results of other observers that thymus remains histologically immature. The authors all think they have found that utilization of rabbits for breeding has its value on the thymus. The present study showed that the application of the thymus as well as the histological specific influence is not essential for the involution of the glands.

GEORGE E BLUM

Woglom W H *Of the Power to Produce Sarcomatous Transformation in the Struma*  
*J C P 19 147*

Woglom states that certain alterations which occur in the stroma of carcinoma are usually seen in the stroma of carcinoma. Like some other but such as the atrophy of the power to produce sarcoma is a permanent process of the sarcoma cells. This was first observed with Flexner-Jobling tumor and anoma of the mammary vesicle of the rat which he described in the stroma of a sarcomatous portion of the fifth and sixth generations of the progeny of a pair of eight or nine years. A better power to produce sarcoma has been entirely lost cannot be determined. Similar condition has been found in most by other observers.

The author describes in detail a spontaneous tumor of the first guinea pig mammary of a mouse which was given the neoplasm of a day later lost the power to produce sarcoma. The organ grew was removed and inoculated into young mice. The tumor developed in them was a carcinoma.

sarcoma while the disc removed from the spontaneous growth and examined microscopically in sections showed no sarcoma however these sections represented only about a quarter of the whole tumor

The neoplasm was an adenocarcinoma more hemorrhagic than the ordinary tumor and had extremely scanty stroma. With a few exceptions the daughter tumors preserved the adenocarcinomatous type in the main up to the present time. Alveolar areas and keratinization occur with relative frequency. It is probable that about one quarter of all the spontaneous mammary carcinomata in the mouse produce more or less keratin although there is not enough data at present to draw definite conclusions. Only about 12 per cent of sarcomata in man involve keratinizing neoplasms. But human mixed tumors may occur in practically any part of the body and cannot be compared to that of the mouse where carcinomasarcomata occur exclusively in the mammary gland.

The question arises whether mouse tumors containing keratin may not perhaps induce sarcoma development in their stroma more often than other types of carcinoma. L. R. GOLDSMITH

## RADIOLOGY

Kuegle F. H. The Uniform Standardization of Roentgenographic Technique. *W. d. & Surg.* 9:71, 1948

The author believes that the lack of detail in roentgenograms is due to the fact that the image is not in focus. This viewpoint introduces a new idea into the science of roentgenography and challenges the generally accepted opinion that faulty definition is due to secondary irradiations.

Reasoning from the generalization that roentgen rays are subject to interference just as are other waves of the visible spectrum, the focal spot in the Crookes tube is held to be analogous to the diaphragm in the camera obscura. It is then pointed out that whereas the minimum focal distance when using the pin hole camera for photographing objects with reflected light is dependent upon diffraction, this does not obtain in roentgenography in which the image is produced by transmitted light.

The author states that a shadow may be considered sharply defined if its penumbra does not exceed a breadth of one half millimeter. He then demonstrates that either waves emanating from any given focal spot produce upon the photographic plate a shadow, a part of which is umbra, a part penumbra and that the relative breadth and intensity of the umbra to the penumbra depend upon the following factors:

1. The size of the focal spot plus the evenness of the distribution of energy over its surface.

2. The focal distance.

3. The thickness of the part being roentgenographed.

Since these factors are subject to measurement

a geometric equation for approximately computing the minimum focal distance becomes possible. This is formulated by the author as follows: The distance from the focal spot to the proximal surface of the body being roentgenographed represented by  $X$  is to the thickness of the part as the diameter of the focus spot is to one half mm, the penumbral focal spot shadow consistent with good definition. The sum of  $X$  and the thickness of the part constitutes the minimum focal distance which will insure the production of an image having sharpness.

The present requirements for the making of better roentgenograms by the rank and file of roentgenologists are summed up tersely as follows:

The accurate standardization of roentgen ray tubes in accordance to the size of the focus spot so that the roentgenologist may know for what particular type of work a given tube is adapted.

The use of intensifying screens for medium and heavy work which require a tube having an extremely fine focal spot to produce an image in sharp focus, thus being economically necessary to conserve the tube and prolong its life.

The elimination of so called rapid or flash shot roentgenography except for cases where speed takes precedence over fine shades of detail since only tubes having a very broad focus spot can be energized safely with high milliamperage at the voltages required for such work. Gastro intestinal roentgenography is listed under this heading.

The author concludes that if these principles were borne in mind by all roentgenologists the inevitable result would be the uniform standardization of roentgenographic technique.

Pirie A. H. Shrapnel Balls Their X Ray Characteristics Compared with Bullets and Other Foreign Bodies. *Can. d. M. Ass. J.* 1917, v. 7, 8.

Pirie's analysis is based on a study of 10,000 X ray plates made during one year at a hospital in France. Shrapnel balls were shown on 41 plates and bullets on 42. Pieces of shell casing bombs, hand grenades, etc. were shown on 3,846 plates. In no case did a shrapnel ball pass entirely through the body as a bullet frequently does. They were in several instances stopped by the skin on the opposite side from the entrance. There was no instance of the fracture of the femur shaft or the penetration of the brain by a shrapnel ball. In one instance both tables of the skull were fractured and the ball remained in the bone.

Shrapnel balls are usually of lead but balls of iron have been found. Differentiation is important if the projectile is to be removed by aid of the vibrator. The shrapnel fragments generally have smooth or rounded edges. If a bone is hit dust like particles are seen at the contact.

Pirie believes that the shattering of bone by bullets occurs at the point of exit rather than at the entrance. In soft tissue the wound of exit is larger and more ragged than the wound of entrance.

DAVID I. BOWLEN



diminish the total capacity without altering the fundamental structure of the whole unit.

This surgical unit as designed has been put into effect at the front by the French service. Each unit consists of three distinct sections: an operative section, a hospital section, and an administrative section.

The operative section has five motor wagons, one for sterilization, one for surgical material, one for radiography, one fitted for operations, and one for pre-operative work. The light is furnished by the first wagon generated from the motor and distributed by connections.

The hospital section theoretically provides 100 beds. There are five divisions of 20 beds each, division being complete in itself.

The administrative section carries food and a kitchen, etc., for the personnel. The whole unit has its central station around which it is grouped. The sections are such that each may be independently increased or diminished according to necessity without altering the structure of the whole group.

This surgical unit fulfills the object of being autonomous and mobile. It is adaptable either to stationary warfare or moving troops and may be extended to meet the requirements of the work to be done. Quenu states that he has visited one of these formations, examined it in every detail, and was most favorably impressed. W. A. BRENNAN.

**Roussy, G. and Lhermitte, I.** The Hemiplegic Form of Direct Shock of the Cervical Cord with Lesion of the Eleventh Cranial Pair. (*La forme hémiplegique de la commotion directe du moelle cervical avec lésion de la onzième paire crânienne*) *Arch. Méd. Par.* 1914, 468.

In shell shock producing brain concussion the occurrence of an anatomic lesion is exceptional. This is not the case in spinal cord concussion. The concussion in this case is the jarring of the cord due to a traumatism either of the spine itself or of its bony appendages or of the muscles which are inserted in it. This direct concussion differs much from concussion, attrition or wounds of the spinal cord. Besides such direct concussion there is an indirect concussion of the cord caused by shell shock, in which case the individual is not struck by any solid body. Such cases are however rare.

The authors report four cases which are very similar to each other and are of a new form and clinical type, i.e., spinal hemiplegia which does not show the Brown Sequard syndrome but which is associated with a direct lesion of the external branch of the spinal nerve. This lesion is the cause of an amyotrophic type of paralysis of the sternomastoid and trapezius muscles with retraction or degeneration of the atrophic muscles which may be complete or incomplete. Sometimes fibers of the cervical plexus are involved in addition to the eleventh cranial nerve. The lesion is also the cause of sharp pains in the corresponding side of the neck, as well as of the anesthesia or hypesthesia in the painful area.

Hemiplegia appears after a few days when other symptoms due to concussion of the spinal cord have subsided. It does not remain complete very long. Gradual recuperation is observed at first of the lower and later of the upper limb.

In one of the authors' cases there were subjective symptoms of sensory disturbance: pains in the paralyzed side of the body which were provoked by the slightest touch. These pains were quite different from the excruciating and tenacious pains observed in cases of concussion of the cervical portion of the spinal cord causing brachial plegia. In this latter case the pains are localized in the area corresponding to the superior roots of the brachial plexus and are due to their involvement. In the former case the spinal cord alone is involved. In the first case there are objective signs of sensory disturbance; in the second there are none.

Other disturbances due to the concussion can be observed in these cases of spinal hemiplegia, such as vasomotor sudoral and thermal disturbance. Amyotrophy involving the whole paralyzed side of the body sometimes appears at an early date.

Hemiplegia as well as quadriplegia and monoplegia due to concussion has a favorable prognosis as regards life and often ends by a complete restoration of functional efficiency. This possibility is due to the fact that the lesions due to concussion chiefly involve the axial fibers. Thus in even apparently serious cases of concussion of the spinal cord there is the possibility of very satisfactory if not complete restoration. W. A. BRENNAN.

**Goldthwait, J. E.** The Place of Orthopedic Surgery in War. *Am. J. Orth. Surg.* 9, 169.

The article deals with the conspicuous position which orthopedic surgery occupies in this war and states that much of the work that is now being developed is bound to be preserved to meet the civil needs when the war is over. In England the work has been directed by Jones who was formally appointed Inspector of Military Orthopedics in March 1916.

Later an official classification was prepared of the conditions to be considered orthopedic. These are as follows:

1. Derangements and disabilities of joints simple and grave including ankylosis.
  2. Deformities and disabilities of the feet such as hallux valgus, hallux rigidus, hammer toe, metatarsalgia, painful heels, flat and claw feet.
  3. Malunion and ununion of fractures.
  4. Injuries to ligaments, muscles and tendons.
  5. Cases requiring tendon transplantation or other treatment for irreparable destruction of nerve.
  6. Nerve injuries complicated by fractures or stiffness of the joint.
  7. Cases requiring surgical appliances.
- The magnitude of the problem is shown by the fact that from 30 to 50 per cent of all injuries require orthopedic treatment. When it is realized



# GYNECOLOGY

## UTERUS

Lindquist L Results in Two Hundred and Twenty One Cases of Laprotomy for Myoma (Redo o e l e e n s e r e a v m y o m l a p a r o t o m i e) *Hygiea* Sto kholm 1917 lxxv (25)

Lindquist gives a detailed tabular statement of 221 cases of uterine myoma in which he operated (These cases cover a period of eighteen years)

The operations performed were as follows supravaginal amputation of uterus 121 cases total extirpation 65 cases enucleation 16 cases enucleation plus extirpation, cases extirpation 12 cases

One patient died after total extirpation and one after supravaginal amputation both deaths were due to pulmonary embolism This gave a post operative death rate of 0.9 per cent Disturbances followed in 45 per cent of the cases after artificially induced menopause The rate was 41.6 per cent in cases where one ovary was left as against 51.6 per cent where both were removed The final results were excellent in 91 per cent of the total extirpation cases and in 81.1 per cent of the vaginal amputations Malignant degeneration was observed in 14 cases Seven of these are still living one of them for more than seven years since operation and 2 for more than three years One died from other cause than recurrence after four years

Despite the apparent statistical advantage of hysterectomy over the supravaginal amputation the author prefers the latter and continues to employ it whenever suitable W A BRENNAN

Novak E The Organotherapy of Menstrual Disorders *Bill Univ Md Schl Med* 1917 ii 113

After a review of the probable interrelationship between the internal secretory glands and the female generative apparatus Novak enumerates the gland substances most commonly used and points out the types of menstrual disorders in which organotherapy is indicated

These types as the author has arranged them are as follows

1 Uterine bleeding without apparent cause at or near the menopause

Amenorrhœa in young girl the so called functional amenorrhœa of puberty

Amenorrhœa of later life frequently caused by obesity and sexual hypoplasia

4 Menorrhagia and metrorrhagia at puberty where there exists no definite pathological lesion

Primary dysmenorrhœa

The author prefers to look upon organotherapy as a species of drug treatment which is therefore

not usually specific but effective as an adjuvant in the treatment of a given disease Viewed from this angle and considering the lack of any certain knowledge regarding their therapeutic indications the results so far obtained by the administration of the organic extracts are certainly not discouraging H B MATTHEWS

Collins C U A New Operation for Prolapse of the Uterus *Tr South Surg Ass St Augustine* 1917 Dec

This operation is presented for the relief of complete prolapse of the uterus in which the ligaments have lost their elasticity and the uterus remains permanently outside the vulva

A Pfannenstiel incision is made and a transverse strip of aponeurosis one fourth of an inch wide is cut from the upper edge leaving the two ends normally attached A supravaginal hysterectomy is done and the strip of aponeurosis is laid in the cervical trough and the cervical edges or flaps are sutured over it

The advantages over Kocher's operation or Murphy's modification are that no large pieces of uterine tissue are left in the abdominal wall and its suspending power does not depend on adhesions between dissimilar structures such as uterine tissue to muscle and aponeurosis The cervix is held by the strip of aponeurosis normally attached at each end which will not give or stretch and by the union of dense cervical tissue over this strip

Montgomery E E Choice of Operation for Retro Displacement *N Y St J Med* 1917 xvii 437

Retrodisplacements may exist for a long time without causing symptoms but the author believes this is no argument against the correction of displacements as the position interferes with the return circulation through the veins and the uterus becomes larger from passive congestion Its drainage is less effective and its resistance to possible infection lowered

In a recently confined case mechanical means for holding up the subinvolved organ until involution is completed are justifiable In a young growing girl in whom mechanical means are not advisable much may be done by deep breathing in the knee chest position regulation of the bowels and bladder and avoidance of tight clothing The erect position should be assumed while sitting and the lateral and prone positions in bed Swimming is an excellent exercise for those with a tendency to retrodisplacement

The recognized inefficiency of the pessary as a curative agent has led to a search for more effective



hour for a period of time varying from six to twelve days. Rest a light diet and a saline laxative are given.

The rationale of this procedure according to the author is explained by the fact that magnesium sulphate acts as a dehydrating agent which relieves the pain by lessening the tension of the exudate both in the fallopian tubes and the pelvis. The author has used this form of treatment in 15 cases of acute salpingitis and while he cannot assert that it cures salpingitis he believes that it does relieve the acute attack. H. B. MATTHEWS

Miller C. J. Ligation or Excision of the Pelvic Veins in the Treatment of Puerperal Pyæmia  
*Surg. Gynec. Obst.* 1910, xvi, 431

Miller reviews the history of this method of treating puerperal pyæmia. In the other forms of puerperal infection the tendency has been to abandon active surgical interference and to depend upon expectant treatment, this course being justified by experience.

In the pyæmic form however no method of treatment has reduced the mortality to any degree. The gaping vein at the placental site offers the most favorable opportunity for blood infection. If the invading organisms are highly virulent a severe bacteræmia or pyæmia results before local processes may bar their advance. Such cases are doomed from the beginning and death occurs with little if any local evidence of disease.

In cases with greater resistance or lesser bacterial virulence protective thrombi may form in one or more of the pelvic veins. The infection may then become limited or the thrombi may extend and cause death by involvement of the larger venous trunks. More frequently the thrombus undergoes liquefaction and liberates septic emboli which carry infection to remote areas and establish metastatic foci or abscesses.

Hunter in 1844 successfully treated a case of pyæmia by ligating the saphenous vein and Zaufel in 1894 was likewise successful in treating pyæmia of otitic origin by ligating the jugular. This principle was not applied in obstetrics however until 1902 when Bumm and Trundelburg published their results in the treatment of puerperal pyæmia the latter attacking the veins extraperitoneally the former by the transperitoneal route.

In estimating the value of this treatment four phases of the subject must be considered:

1. Can septic thrombophlebitis be recognized with sufficient accuracy to justify a serious operation?

2. Do the pathological conditions found at operation or autopsy justify intervention?

3. What are the indications for operation?

4. Has the mortality been reduced by operation?

In reply to the first question while American obstetricians are skeptical as to the feasibility of diagnosis those in Germany insist that it is possible in the majority of cases differing however as to

how early a diagnosis can be made. Chills are the most important symptom but they are variable as to type and time of occurrence and may even be absent.

In some cases 80 per cent. according to Lenzartz the thrombosed veins can be palpated as worm like masses high up in the outer portion of the broad ligament or along the spermatic vein. They are easily confused with pyosalpinx and parametritis both of which present as a rule a more persistent temperature with less tendency to recurrent rigor and considerable pain.

Absence of pain is the rule in thrombosis though it may be present in the beginning. The broad ligament is not fixed as in cellulitis nor does the mass approach the pelvic wall as in simple exudates. Blood cultures are of little value.

In a case presenting high temperature with marked remissions without pelvic exudates or peritonitis the uterus empty and correspondingly involuted the diagnosis should not be difficult.

The frequency of the affection should be of some diagnostic value a condition found in one third to one half of all women dying of puerperal infection should emphasize the probability of its presence in a given case.

With regard to the second question pathological findings at operation or autopsy are a practically normal genital tract with the exception of thrombosed ovarian veins. A few cases show involvement of the lymphatics in addition.

While different veins may be involved analysis of 100 cases shows one spermatic 7 times both spermatic 5 times one hypogastric 6 times one hypogastric and one spermatic 6 times one common iliac 5 times.

These findings are those obtained at operation not at autopsy when the thrombosis is usually much more extensive. This tendency of the process to primarily affect only one or two veins is a very strong argument for surgical treatment.

Some oppose intervention on the ground that the thrombosis is a protective process and that there is always a septic endometritis present and that ligating or excising individual veins will not close all the avenues to the blood stream.

These arguments are answered in that a thrombosis is no longer conservative when it begins to liquefy and discharge septic emboli into the circulation and furthermore that the patient can usually withstand a septic endometritis if the veins do not become thrombosed and discharge infected emboli.

The principle underlying ligation of infected veins is the powerful resistance offered by the vessel wall to streptococci. It is a considerable obstacle to the highly virulent and an almost insuperable obstacle to the benign streptococci. Such a degree of resistance is possessed by no other tissue and since a single vein is involved in most instances it would seem a further proof that surgical intervention is a rational procedure.

Regarding the third question the time to operate



is still a matter of discussion some advise operation after the first chill some not until the thromboembolisms can be palpated. The acute stage of ring which general toxic symptoms predominate lasts from eight to ten days after which localization in the veins takes place and the constancy of symptoms becomes morbid.

Of the cases all told the recovery statistics are better for those operated in the first and fifth weeks though Vnus had 53.8 per cent recovery in those operated upon in the first two weeks and 48 per cent in the second two weeks. On a ratio for early operation is to prove that most of the thrombosis is in the cava.

Operation for the cases showing evidence of pyelitis, bronchitis, tuberculosis and multiple metastatic abscesses of the endocarditis, pneumonia, abscess or pneumonia usually indicate general pyaemia and central catheter operation.

As to the technique in the localization of the thrombus distal complications the triperitonial method is the only one to be considered. In pure thrombophlebitis is sufficient. Local incision and catheterization of the peripheral veins or when the central veins of softness which appear likely to perforate. Wnekos urges ligation of the common iliac thrombosis of the deep veins and finally that next to the common iliac is the cava can be tied without fear of gangrene.

As to the four questions the lowering of mortality by operation on general iliac thrombosis that the average death is between 6 and 70 per cent. Of the operated cases including those with cava thrombosis the mortality is 51.6 per cent. Clinically all the other hopes are some of which were practically autopsies as the cases with central pyelitis, ligation of the vessel, blood ligament and multiple metastatic abscesses all of which are distinct contraindications to operation on the mortality is reduced to 33.9 per cent.

The author appends the summary of the 97 cases recorded in literature this being the list published by Williams to indicate his own addition of the cases reported in the literature.

### MISCELLANEOUS

Stevens W. F. Etiology and Treatment of Fungus of Uterine in Woman. Vol. 1. M. J. 97, 163.

Frequency of urination is often carelessly and unsystematically treated after a cursory examination is made to ascertain its etiology. The use of the endoscope, the cystoscope, urethral catheter and the microscope are essential for accurate diagnosis and should be preceded by a careful examination of adjacent abdominal and pelvic organs and accessory glands. Radiotherapy and function likely to be often required. For the latter the intravenous phloridrin test has proved most helpful to the author especially when the amount of urine is small and the blood.

Pathological conditions of the urethra bladder ureters kidneys vagina uterus fallopian tubes ovaries and rectum as well as general conditions such as diabetes highly acid or alkaline urine, albuminuria of the abdominal organs and central nervous lesions have been found responsible for this symptom. The most frequent cause is trigonitis associated with urethritis, pyelitis ranks next in order. A common factor scant mention of which is found in the literature is prolapse of the posterior urethral wall.

The treatment of trigonitis and urethritis which has proved of most value is the application of a solution to treat drainage through the urethral catheter which may be left in position for a period of from twenty hours to several days. This together with the production of a decided change in the reaction of the urine by means of acid sodium phosphate, sodium bicarbonate or potassium citrate which inhibit the growth of the offending bacteria usually results in recovery. Collapse of the posterior urethra is best corrected by operative procedure.

In view of the numerous causes of this complaint, history conclusions should not be drawn as to its etiology and treatment should be instituted only after a careful examination.

Watkins T. J. Radium in Haemorrhage at the Menstrual Period. S. G. C. C. 917, 3.

In the first case reported by the author the patient aged fifty suffered from persistent menorrhagia of the menopause after a vaginal operation done several years before. Under treatment of the patient as reported but nothing abnormal was found. Fifty mg of radium were inserted into the uterine cavity, the radium were used by one mm. of gold covered with rubber and left in place for twenty-four hours. Slight bleeding followed for a week. Three months later the uterus was atrophied the general condition was excellent. The radium had acted on the graafian follicles and produced definite changes in the endometrium and in the blood vessels of the uterus.

In the second case the patient aged forty-seven suffered from excessive menstruation. The uterus was large but showed no neoplasms. Twelve hundred mg of radium were used. Six months after application the bleeding had been entirely stopped.

The radium element is in a small glass capsule, this is enclosed in a silver capsule and placed in a small gold capsule which is covered with rubber. To this a cord is attached to guard against losing the radium. It is introduced with the greatest septice precautions. A capsule of fifty mg of radium is left in place for twenty-four hours, i.e. twenty hundred mg hours.

There is no pain from the use of radium. Side effects are vomiting and a feeling of exhaustion are present for two or three days. Bleeding may persist for a few days following the use of radium and

leucorrhœal discharges are often increased for two or three weeks. One menstrual period may occur after the use of radium.

This method will probably diminish considerably the hysterectomies done for menorrhagia occurring at the menopause and for persistent menorrhagia that not infrequently follows the operation of vaginal fixation.

S. W. BANDLER

**Delacroix I. A. B.** *Gangrene of the Extremities Consecutive to Gynecological Operation and Puerperium* (Gangrene de las extremidades consecutiva a operaciones ginecologicas y al puerperio) *Thèse de doct.* Buenos Aires 1917

Various aspects of gangrene following gynecological operations and the puerperium are discussed. Stein in 1916 collected 76 cases from literature including 63 cases of peripheral gangrene consecutive to labor, 5 cases after abortion, 4 cases as complications of pregnancy.

The author considers the condition according as the obstacle to the circulation may cause (a) gangrene of arterial origin or (b) gangrene of venous origin. The various theories put forward by different authors are reviewed and discussed.

Delacroix gives the details of a case following an operation. The patient was a woman of thirty-five years on whom a subtotal hysterectomy had been done for intraligamentous fibroma with double adnexitis. One month and a half later she left the hospital at her own request with a small fistula which persisted. She returned a month later in a very bad condition and unable to walk. The wound

was open and discharged a quantity of dark serous exudate. In the region of the left ankle there was a necrotic area about 20 by 10 cm. in size. The right extremity was similarly affected but to a lesser extent. Her condition rapidly became worse and the woman died after a few days. There was no autopsy.

The determining causes of the gangrene in this case, the author believes, are operation and infection acting in conjunction with a predisposing condition of organic debility. In the absence of autopsy it cannot be stated what type of gangrene occurred but its development in corresponding areas suggests an arterial origin. Infection probably penetrated into the uterine artery sectioned during the operation and by extension and formation of coagulation succeeded in occluding the primary iliac on one side, then continuing its extension reached the aortal bifurcation and occluded the primary iliac of the opposite side.

W. A. BRENNAN

**Walters F. A.** *Gynecology in General Practice* *Clinique* Chicago 1917 xviii 37

The author states that exposure to the elements at or during the menstrual period often causes an engorgement of the pelvic organs or produces a relapse in patients undergoing treatment for such a condition. He believes that operative measures are resorted to oftener than necessary and recommends the employment of the mixed infection serum and electric currents in salpingitis and the use of iodine in connection with other remedies for a lengthy period of time in fibroid conditions.

L. K. P. FARRAR

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Ch rry T H D *cript on of a Simple Mett od of Performing Extrap rition al Cæsar an Sect ion A J Ob i N Y 9 7 1 590*

The author states that it s sometimes possible to do an ext ape ito al æ ar an se t on hen the classic c t on s ont a i d i t t e d s in inf cted genital c n l Such procedur is al o prefe abl n patie t with relatu ly cont a ted p l ho h c been n l bor for a lo g t me

The t o diff ent method of trape itone l cæ ar an section are (1) that by hich the peritone l avity not open d and ( ) the transperiton al oute in which the edges of th inci d par t l periton um are sutu ed to the v ce al pe ston u f the uteru befor the latt r s op ned

The utho outlines biefly the method nd mod h tions by S llhem Latzka G llho n and Hirst He then give hi m thod whch a mod h tion of tlat u ed by Hirst The usu l abi m n l in sion mad d n to the periton um The muscles ar then parated from th periton um along the ent el gth of th in si n nd fo bout r in hes to either s de The p iton um i th n o i ened v t ally the dg ep t d and utu ed to the vi eral p ton um n u h a mann r that oval ar of the v r l p toneum about 3 by 5 nches s i ft po d er th l utri e segment Interrupted utu ar u d Then the uterus s op ned th child tra t d th forceps and the pl nta delivered On c m of pitu trn then gi n intramu ularly follo d by 30 minims of ergot le

The uterus is clos d v th interrupt d brom catgut sutures the sutured eds of the parietal and vi ceral peritoneum are brought tog ther and the wound closed in the usual manner W L Brown

Cumston C G *The Ind cati ns fo Cæsar an Section Ba ed on Twenty Nine Pe son I C s s (L ind t d l p t é e d p è 9 bs at p s ll ) P é d d i S Rom 9 7 69*

The cases of cæsar n se tio reported by Cum ton occurred pr cip lly mong Am rican women There was no death among the o women and only r death among 3 n f nt Di cussi g the various factors call g for op rat on nd the cour e to be pursued Cumston believes that n cases where there is ser ous doubt of the poss bility of labor either spontaneous or requ ring sl ght ntervent on it is better to r sort to th cæsar an op rati n unless the pati nt prefers to await the i st labor p ins nd kno s the dangers t which h i e posed

Wh n doubt ex sts in the la t month of pregnancy n tt mpt should be made under anæsthetic to engage the h d in the superior canal If thus attempt suc ceeds nd there is no other factor which would indicate cæsar an op ration then the fir t labor pa n should be av a ted but if it is not possi bl to ngage th head in the superior canal and specially if th h ad r ma ns above the symphysis publi a rc operatio should be done without h s tat on

In the ca of a trictur d pelv s the transver e diamete of th lo er p ssage should not be less than 5 cm and the post rior sag ttal diam ter should also mea ur not less than 5 cm to llow the pass g of a no m l child without undue diffi ulty

C m tou o il rs the size of the fœtus primi p rity pr ious diff ult labors p lvic operations and t mo a f ct indic ting cæsar an operation Wom n h v ng valvular he t d sease can v th tand cæ ar n p ati b tter th n th fati ue of l bor esp lly f i t s the first pregnancy and th soft p rts ar n t y lding In pla nta prævia if th ut in ne k lon id and badly incli ed abdominal d li rv i d cated R gardu g eclamp sia an an d rion th author does not think cæsar an d l ry n cs ary f the plvis s w ll form d nd f th r s no c ssive vulvar œdema St tistic of cæsar oper t on don in eclamp a sh a m rtal ty of 50 p r c nt to high a p rcent ge to counsel th pro du e

As a g r l r l i t s bette to s ture the ut rus ft r a cæsar an op ration nd to return it to the abdomen than to m ke n hyster ctomy

W A BRENNAN

Warn F *A Case of Cæsar an Sect on n Pri mipa Foll wed n the Next P gnancy by Norm I Dellv ry 1m J Ob i N Y 9 7 1 588*

Infection follo ng cæsar an section may have two unfortunate r s lts (1) the death f the pati nt in m ny cases nd ( ) a poor s ar since the infectio involv d the wound in the uterine wall and ter fe ed th ormal healing

Th dict m th t a cæsar n section once pe form d must al ay b follo ed by cæsar an section still has its ad ocac but m ny obstet cians no be l ev this do s not hold if there v s no infect on of the wound nd th r st op rat on and if it was not done becaus of a markedly ontracted pelvis

In c s here a high ncision w s made in the uterus vith no infection t i rc so able sife to llow uch a oman to del er hers lf sponta eo ly in sub qu t l bors Gi ag pitu tr n in uch es

adds greatly to the risk. Rupture of the uterus following the use of pituitrin has been reported in patients who had had no previous caesarean section so one should be doubly cautious in using this drug on a uterus with a scar.

Cases have been reported of spontaneous delivery following previously infected caesarean sections but to this group belong most of the ruptured uteri following caesarean section. Vaginal caesarean section may be elected if the patient is placed in a good hospital with constant care and observation.

Transverse fundal and extraperitoneal incisions are not as safe as the usual high midline incision. In Findley's report of collected cases he deprecates the use of the bag tamponing high forceps and pituitrin.

In general the author believes that where healing has occurred without fever or pus formation in the incision a scar is formed which will probably withstand a normal delivery especially if the wound has been sutured with care. Both types of scars require constant observation in a well equipped hospital during the last weeks of pregnancy and confinement.

The author reports a case of normal spontaneous labor following a previous caesarean section.

Caesarean section should be done in a primipara with a rigid and undilatable os only where the vagina has not been contaminated by various examinations and manipulations. The author advises dilatation and podalic version in these cases.

If caesarean section must be done in such potentially infected cases Newell believes it should be associated with hysterectomy at the time.

In his conclusions the author states that caesarean section performed early in labor before vaginal examinations and manipulations have been done is as safe as any ordinary abdominal operation. In these latter cases craniotomy or podalic version are preferable to abdominal delivery. However if a caesarean section is necessary a hysterectomy should be done. If a normal delivery is attempted in a subsequent labor it should be done in a well equipped hospital where the patient can be watched for signs of the scar yielding. The operating room should be ready for instant service. Only rectal and not vaginal examinations should be made.

W L BROWN

## LABOR AND ITS COMPLICATIONS

Danforth W C. Nitrous Oxide Analgesia in Obstetrics. *Am J Obst N Y* 1917 lxxvi 563

An analgesic in labor has been sought for years. Chloroform first used has proved toxic for the parenchymatous organs of both mother and child when used over a long period. Ether was used but like chloroform has the disadvantage of diminishing the force and frequency of the pains.

The author gives a brief sketch of the use of nitrous oxide and reports work done along this line in the Evanston maternity hospital. A very important point in its use is to begin the nitrous

oxide inhalations early with each pain. To do this the anaesthetist is advised to keep one hand on the fundus of the uterus in order to ascertain the very beginning of a contraction.

Cyanosis is to be avoided and if needed a little oxygen is added to the gas. Sometimes a few breaths of oxygen are given at the end of the contraction to strengthen the patient.

In cases where violent and frequent pains render laceration imminent a little ether vapor is added to the mixture. This permits better control of the patient, does not nauseate and does not prolong her complete recovery. Ether is always used for operative procedures and extensive perineal repairs.

After delivery and before tying off the cord in halation of a few breaths of oxygen will often restore a clear pink color in a cyanotic baby.

A total of 469 patients were given this type of analgesia for from five minutes to seven hours. Out of this number only 7.5 per cent could be considered as having unsatisfactory results.

The condition of only 32 babies was reported as not good. This included those whose condition was reported as fair.

Causes other than the anaesthetic explained this condition in 1 case. In 7 cases forceps delivery had been done and in 1 a breech extraction.

There were 6 stillbirths. Such conditions as hydrocephalus, premature labor, face presentations, craniotomy and breech presentations were assigned as causes.

Several cases of hemorrhage in the newborn occurred. Ferguson thinks this hemorrhage might be due to the nitrous oxide and attributes it to a haemolysis resulting from cyanosis or partial asphyxia. However the author states that there has always been a percentage of these cases similar to the present percentage before the introduction of nitrous oxide.

A marked advantage gained by the use of this analgesic is the freedom from mental and physical exhaustion in patients delivered under the influence of gas. Nurses who attended cases where the gas had and had not been used in some cases upon the same patient noticed a marked freedom from signs of exhaustion and mental strain.

In his conclusions the author states that the gas should be given interruptedly for not more than three hours. It should be started immediately at the onset of each pain. Cyanosis is to be avoided. He lays stress upon the fact that experience is necessary in giving the nitrous oxide in order to obtain ideal results.

W L BROWN

Davis C H. A Study of Chloroform Ether and Nitrous Oxide Oxygen in Pregnancy and Labor. *Am J Obst N Y* 1917 lxxvi 557

Nitrous oxide oxygen analgesia is being used much more extensively in labor now than formerly. The results vary materially due to lack of experience on the part of the obstetrician. Some prefer chloroform or ether because these are less expensive.

The toxicity of the various anesthetics is considered and conclusions are drawn from experiments done on pregnant and non pregnant guinea pigs

Degenerative changes in the tissues follow long administration of chloroform ether and nitrous oxide oxygen to pregnant or non pregnant guinea pigs The changes in the liver are the most constant If these degenerative changes do not result in death gradual recovery may follow after a considerable time

Chloroform causes central necrosis which is more permanent while ether and nitrous oxide oxygen produce changes coincident with cell asphyxiation This dangerous element in the use of chloroform is not eliminated by using pure oxygen with it

Long continued use of these anesthetics must be considered dangerous to the fetus *in utero* though nitrous oxide-oxygen analgesia is less dangerous than anesthesia However there is no reason to believe that the long continued intermittent use of four or five inhalations with ether contraction can be of any material danger to the fetus

Chloroform does not cause death readily in obstetrical work but it does produce central necrosis and fatty changes These changes occur even though pure oxygen is given with the chloroform These changes occur in the fetal liver tissue no doubt as a result of direct injury to the fetal liver by the chloroform absorbed through the placenta Ether produces changes similar to those produced by nitrous oxide oxygen but more permanent perhaps because a much longer time is required to eliminate the ether from the tissues

Nitrous oxide oxygen administered to the pregnant guinea pig may cause death of the fetus without any apparent signs of asphyxia in the mother This is probably due to inability of the tissues to use the oxygen in the blood in the presence of a high nitrous oxide concentration

Danger from the use of nitrous oxide is primarily due to the long continued interference with the cell metabolism This factor does not exist in the intermittent use of a few inhalations with each uterine contraction in labor for the gas is quickly eliminated after each pain

In conclusion the author states that ether is the anesthetic of choice for long operative procedures in pregnancy or labor while nitrous oxide oxygen is preferable for short operations and examinations As an analgesic early in labor the author divides the use of an opiate alone or with chloral hydrate or scopolamine During the painful second stage nitrous oxide oxygen is the most desirable and chloroform is less desirable than ether W L Brody

## PUERPERIUM AND ITS COMPLICATIONS

**Blind P B The Treatment of Infection Following Labor Matur and P Emature P M J 97 x 18**

Infection following labor forms one of the bi-economic topics of the present time the author declares

In 1914 10 518 women died in this country from childbirth and these figures represent the deaths in only two thirds of the estimated population of the United States From these figures one would be justified in believing that at least 15 000 women die in America every year as a result of labor If the mortality that results from complicating conditions is added to these the author believes with De Lee that the total death rate would reach 2 000 If the mortality therefore of puerperal infection as is generally conceded is about 5 per cent it would mean that in 1914 there were 100 000 infected puerperans in this country

These figures have to do with labor at term Exact figures concerning the number of abortions that occur are not obtainable It is known however that about one abortion occurs for every four or five full term labors The infection results in this manner as the result of infection or contamination and lack of care on the part of the patient during convalescence

In considering the treatment Bland divides it into application into infection following labor at full term (a) with the uterus empty and specific puerperal bacteremia (b) with second ones retained and secondary infection following abortion

In the first type the treatment is essentially conservative and along medical lines rest physical and mental fresh air day and night feeding to the point of gastric tolerance elevation of the head of the bed no purgation Purgation the author believes does more harm than good Elimination is favored by the free administration of water by the mouth and by the bowel So called specific therapeutic agents such as vaccines and phagocytic stimulants in general have been discarded As a rule no drugs are given locally interference of any kind is rarely indicated and its routine employment is mischievous He emphasizes and condemns the utility of local measures which are still so frequently practiced Current practice is a measure and should never be used Irrigations do no good and may be harmful and vaginal manipulation should not be resorted to unless the case is some definite and positive indication

In cases of material retained the author believes in waiting distrustingly to the efforts of nature If the retained material is not discharged within a reasonable time it should be gently withdrawn either with the finger or with the finger This procedure should never be followed by irrigation or curettage

The treatment of infection following abortion is along the general conservative lines instituted generally rather than local measures Routine and habit abuse of the curette should not be resorted to Irrigations too are pernicious and do more harm than good

The plan of treatment pursued by Bland is based on the modern knowledge of natural dividual powers to vacate herself to naturally to develop an active immunity This has overcome the assumption

tion that puerperal infections are surgical emergencies and should be treated by emergency methods. The author is convinced that ordinarily from an economic and conservative standpoint both as concerns mortality and morbidity better results will accrue from the application of conservative medical measures than from indiscriminate and hasty employment of surgery.

In discussing the treatment of localized collections in the pouch of Douglas or in the fallopian tubes as a result of puerperal infection the author believes in a waiting policy. Medical measures should be tried first; if these fail surgical treatment may be resorted to. Early or hasty surgery in limited puerperal exudate or puerperal tubal infection in view of the present knowledge of immunology is not indicated and its general practice means sacrificial and frequently unnecessary operation. The axiom usually applied to the operative treatment of pelvic inflammation to wait until the temperature reaches normal and then to operate is a wise teaching but it does not fully cover the premises. At this period nature's therapeutic agencies are just becoming operative. They should be given a chance. Wait until the temperature reaches normal and then continue to wait. In so doing a dangerous and mutilating operation may be avoided and anatomical structures may be preserved with physiological action.

The author believes that the whole aim of the surgeon in treating cases of puerperal infection should be directed first to conservation of life and health, second to economy of tissue and third to preservation of function. He believes furthermore that these factors are better accomplished by relying on the power inherent in nature than by instituting indiscriminate and dangerous surgery.

#### MISCELLANEOUS

Smith M. K. Review of Recently Delivered Cases Observed During the Course of One Year in the Gynecological Class of the First Division of the Hospital. *Bull Lying In Hosp N Y* 1917 vi 193

During the year extending from November 1915 to November 22 1916 there were 289 cases in the gynecological clinic of the First Division of the Lying In Hospital representing about that

same number of individuals. These cases were divided as follows according to months: First month 81, second month 92, third month 38, fourth month 39, fifth month 20, sixth month 19. In other words as would be expected it is the newest mothers who require the closest oversight.

The complaints also vary in incidence and character with the months. In the first month post partum subinvolution is the commonest ailment occurring in more than one fifth of the cases. Unhealed perineal lacerations are a close second and nipple complaints a third. Rectal conditions, fissure and hemorrhoids and retroversion follow but are less frequent.

In the second month breast and nipple conditions occupy first place, abscess being the least frequent among these conditions. Subinvolution takes second place and lacteal conditions third, while unhealed perineal lacerations make a close fourth. Back strain comes next, while adnexal or parametrial disorders and retroversions are not infrequent.

The third month sees a marked drop in the number of cases. In this period retroversion stands ahead while the other conditions mentioned as appearing in previous months appear with about equal frequency, with the exception of subinvolution which becomes less important.

In the fourth month adnexal and parametrial conditions occupy first place while a new cause for seeking advice takes second place, namely the question of a new pregnancy. By this time unhealed perineal lacerations and breast conditions are relatively infrequent.

In the fifth and sixth months the pregnancy problem holds first place with retroversion a close second. Other conditions although still found in the list are overshadowed by these two.

To summarize the youngest mothers come back with subinvolution, breast and nipple inflammations, unhealed perineal lacerations, anal fissures and hemorrhoids as the chief complaints, conditions depending more or less closely on labor and the early weeks of lactation. These give way in importance toward the end of the first half year to a more permanent sequela of improper involution, retroversion, and to the question of another pregnancy.

C. D. HOLMES

# GENITO URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Hinman F U logical Diagnosis in General Practice C l f St f M d 9 7 39

The necessity is emphasized of properly performed routine urological examinations on the part of the general practitioner which will enable him not only to make an earlier diagnosis of cases but also to refer at an earlier date particular cases requiring a more complete urological study.

The close anatomical and functional association of urinary and genital cases permits one general preliminary examination to cover all cases. On the indications of such a preliminary study more detailed investigations would differ according to whether a lesion of the upper or lower tract were suspected.

In the study of kidney cases careful urinary X-ray and renal functional studies are required as preliminary to the more special examination of cystoscopy, urography, etc. Likewise cases with acute or chronic lesions of the lower genital tract are followed in a routine way.

The viewpoint of the urologist in analyzing urine should be more generally adopted by the general practitioner. Pus blood and the type of infection on take precedence in his mind over specific gravity, albumin, sugar, and casts. The explanation of a few pus or blood cells as urethral or vaginal contamination is too common a simple method of collection will definitely determine the question. Catheterization or the use of the three glass method and the examination of a centrifuged smear with methylene blue stain carry considerable diagnostic value. Pus blood and bacteria in the bladder urine no matter how small in amount are pathological. A large percentage of pyuric cases are treated for cystitis without proper investigation. Usually cystitis is present in these cases but the cystitis is secondary and will clear up without treatment upon a cure of the primary focus.

Primary cystitis in the male sex is practically unknown and is extremely rare in the female. It is a grievous error therefore to institute any treatment for cystitis without first ascertaining the condition of the urinary tract below the bladder and if found negative thorough investigation above the bladder should be made.

The causes of urinary frequency are difficultly in the male can usually be accurately recognized by the general practitioner if he will make an intelligent rectal examination and will use a urethral catheter not only to measure residual urine but also the length of the posterior urethra. Practically every

man who presents symptoms and signs of prostatic hypertrophy and who has residual urine should be advised to have an operation.

The practitioner should be aware that the X-ray examination for calculus of the urinary tract is not infallible. 50 per cent of stones in the ureter particularly are missed. History reports of such cases are given in detail by way of illustration of urological conditions which are recognized late in their course and which by the routine procedure as outlined could have been recognized early and the grave prognosis in each case probably saved.

Hallé N Chronic Renal Tuberculosis (Lat b l e r é l h r o n i ) P m é d 917 p 633

Hallé thinks that surgical treatment is indicated in renal tuberculosis of open pyelitic form whether primary or secondary. Operation should be early when observation shows that medical treatment is a failure. Indication for operation is debatable only in benign cases with slow progress. A spontaneous recovery may be expected if the patient is kept under careful surveillance and if prompt intervention is practiced in the event of aggravation.

Surgical treatment is contra-indicated in closed parenchymatous tuberculosis.

Total nephrectomy is the only efficacious and sure means of surgical treatment. Medical treatment is always a useful ally to the surgical treatment both in preparation for the operation and afterwards.

The author discusses the polymorphism of renal tuberculosis. He thinks that tuberculosis with a tendency to spontaneous recovery corresponds to the type of closed parenchymatous tuberculosis in which the bacillary infection is hematogenous. Renal tuberculosis with no tendency to spontaneous cure is the clinical form corresponding to open pyelitic tuberculosis in which the infection is lymphogenous and often mixed infection.

W A BRENNAN

Martin A P Hæmaturia in Kidney Calculus (L h m t n n l l r l ) S g l m é d M d d 9 7 l 568

Martin says that the characteristics of hæmaturia which are significant of calculus in the urinary apparatus are its appearance after exercise and its slight intensity and short duration. As in other clinical experiences there are exceptions and a malarious case. Martin gives the histories of these cases in which hæmaturia was the only clinical symptom of renal calculus which was found to exist.

W A BRENNAN

Long H W. Pyelitis in Children. *J Mich St M Soc* 1917 xvi 438

Pyelitis in infants is far more common than the average physician believes. Long contends that urinary infection occurs in one per cent of all cases of childhood. He also states that pyelitis is one of the most common of all the so called obscure causes of fever in infancy and childhood. It occurs most commonly in female infants. The urine does not always show pus because occasionally the ureter becomes plugged with infective material. For this reason it is necessary to make repeated urine studies.

The most important symptoms are chill and high temperature. His treatment consists of large quantities of water and fluids generally alkalies, malt soups and vegetables. Medicinally he administers potassium citrate in doses of 90 to 120 grains daily, hexamethylene in one grain doses, salol and castorics to keep the bowels active. He believes vaccines may have some effect at times.

H W E WALTHER

Fullerton A. Gunshot Wounds of the Kidney and Ureter as Seen at the Base. *Br J Surg* 1917 v 248

Fullerton reports his experience in the pathology and management of 42 cases of renal injury from gunshot wounds as seen at the base hospital.

The eventual pathology depends upon the structure involved in the injury and for convenience injuries are divided into (a) those of the hilum which may be the severance or trauma of an artery resulting in fatal hæmorrhage at once or if a small artery in anæmic infarction and eventual necrosis of the particular part of the kidney nourished by that artery, (b) wounds of the pelvis which are not frequent when uncomplicated, (c) wounds of the parenchyma which may completely destroy the organ or simply perforate it, (d) wounds of the ureter usually present only with involvement of other structures.

The resultant pathology depends upon (1) direct damage, (2) damage due to interference with the blood supply, (3) damage due to pressure from hæmorrhage, (4) results of sepsis. Fullerton believes and presents evidence to support his belief that renal injuries so produced are purely local in character and that microscopic sections from parts distinct from the injury present no disorganization as reported by others.

By studying the ureteral catheter urines as to specific gravity, presence of cellular structures, leucocytes, blood, microorganisms and permeability to dyes he finds that the cases may be divided into (1) those in which a rapid recovery takes place and where the function and urine of each kidney is normal after a week or more, (2) those which present a urine distinctly lower in specific gravity than its fellow, a functional test which he believes to be of much importance not only in injury but in infections and calculi as well, (3) those presenting

disturbance of function as determined by indigo carmine permeability. A definite increase in the time of appearance was noted on the affected side in some patients. Abnormal cellular constituents were found on the affected side in most instances.

To locate missiles the Mackenzie Davidson technique is used with much success. In many cases opaque ureteral catheters are passed into the renal pelvis and stereoscopic radiograms made with excellent results determining thereby the exact location in many reported cases of the foreign substance within or without the kidney or ureter.

A special apparatus is described which is used to reconstruct the track produced by the missile. This apparatus in connection with cross sections of the body gives results as to the organs traversed by the bullet which postmortem and operation have shown to differ very little from actual conditions. It is of vast importance in cases of hæmaturia where surgical interference is indicated, cystoscopy failing and no other method available to ascertain which kidney is in the path of the missile.

The associated injuries in order of frequency are those of the pleura, liver, spleen, spine, hollow viscera and pancreas, while the most prominent symptom is hæmaturia which may be profuse or microscopic but must be differentiated in all instances of concomitant spinal injury from hæmorrhagic cystitis. Urinary fistula of course is a diagnostic clue while shock, anæmia, vomiting, abdominal distention, dullness in the flanks and tumor may or may not be present depending upon the extent of involvement and the complications. Sepsis is a common complication due to the presence of hæmatoma and necrotic tissue which make excellent culture media and the close proximity of the colon which may supply the original infectious material.

Secondary hæmorrhage is a relatively common and severe complication occurring in 9 of 42 patients reaching the base whose kidney injury was either treated conservatively at the clearing station or was not known to be present. In several patients with secondary hæmorrhage there was no evidence or history of hæmaturia at the time of the injury, although there might have been a microscopic hæmaturia easily overlooked. Nephrectomy was done on 8 of these 9 patients with three deaths. The onset of the hæmorrhage occurs about 10 or 15 days after the injury. Fullerton states that secondary hæmorrhage is prone to occur in injured kidneys as the blood supply is out of all proportion to the size of the organ, the blood pressure is subject to sudden and frequent change and collateral circulation being absent the necrotic areas about the track of a missile tend to favor local sepsis which is always present in cases of secondary hæmorrhage.

Unfortunately there are no conservative methods of treating secondary hæmorrhage. The blood supply of the kidney is such that ligation is impractical and complete nephrectomy must be done providing it is definitely known that the second kidney functions well. Many patients are nephrec-



tomized when partial resection might have been done but Fullerton believes these cases are so few and the possibility of complete success so remote that he practices complete nephrectomy in all instances. When bleeding persists after the tenth day and is of sufficient quantity to produce anemia or when a sudden profuse hæmorrhage occurs surgical intervention should take place at once.

Urinary fistula from injury of the pelvis ureter or calyces through the parenchyma may immediately follow the injury or develop later due to sloughing of the traumatized parts. These uncomplicated fistulae are not treated surgically at the base hospital but later may require nephrectomy or plastic operations to close them. Fortunately many of the complications disappear spontaneously.

The chief causes of death in this series of cases were associated injuries, renal sepsis and secondary hæmorrhage.

HARRY CULVER

**Turbid and Gonorrheal Urine Obtained with the Phenolphthalein Test in Functional Diagnosis of Kidney Disease** (R. L. D. obt. d. o. l. p. b. d. l. ph. l. l. ph. n. ph. l. l. d. g. t. f. o. l. d. l. f. m. d. ale.) G. ed. d. C. a. 97. J.

The authors study of Rountree and Geaghty's method of testing the kidney function is based on 80 cases in which it was possible to study the curve of elimination of phenolphthalein in the first and second hour after its injection.

The procedure employed systematically in all cases as follows:

One to two fluid ounce injection 400 c. m. of water was administered to the patient and his bladder emptied by the catheter if necessary.

2. An injection of 5 c. m. of phenolphthalein made deep in the muscular mass of the lumbar region or intravenously, care being taken not to lose a single drop of the fluid, it might lead to an erroneous result.

3. Precisely and thoroughly after injection the patient's urine is collected separately and the quantity of coloring material determined by a colorimetric method.

In normal subject the phenolphthalein appears in the urine in from 5 to ten minutes after a subcutaneous injection and is eliminated in 50 to 60 per cent within one hour, the elimination is 15 to 25 per cent in the second hour. If the injection is intravenous the substance appears in the urine in three to five minutes and the elimination is 65 to 80 per cent in the first hour.

A table of results shows that in subjects with functional integrity of the kidneys in which repeated examination has failed to detect any trace of albumin or casts, plasma and renal pelvises being normal, the elimination curve shows more than 70 per cent of the injection as a rule in the first hour. Another tabular statement shows the relations existing between the phenolphthalein eliminations and the character of certain kidney lesions. This

table makes it evident that whenever a kidney lesion exists the phenolphthalein test gives precise indications of the state of the organ. In acute nephritis due to eruptive fevers etc. the elimination increases as the symptoms improve.

From their own experience the authors believe that many of the contradictory results obtained by other investigators are not logically deducible from the data. Many such cases occur in women with severe genital affections or those advanced in pregnancy and in spite of a functional integrity of the kidney the urinary secretion is disturbed.

In making the injection in the bladder should be completely empty. Moreover some have made the injection in the gluteal region in which it is well known there is much fatty and connective tissue which makes the absorption of the injected fluid difficult. This disadvantage is overcome by injecting in the lumbar region which is well vascularized and in which absorption is very rapid.

W. A. BRENNAN

**Kretschmer, H. L. Urteral Calculus Removal by Inta-Ureteral Injection of Oil S. G. C. Ch. 5. 97.**

The author discusses the diagnosis of ureteral calculi and calls attention to the fact that calcification of the ligaments calcified lymph nodes plaques in the arteries and various phlebectasias are of local origin in the seminal vesicles or broad ligaments. Various shadows that at first glance one would interpret as renal stones. He shows how markedly the differentiation between these shadows and those caused by true ureteral calculi can be made by using the hystero-graph ureteral catheter. No ureteral stone should be operated upon until a persistent effort has been made to relieve the patient by cystoscopy.

He cites cases of stones in the ureter the first of which is relieved by a slitting of the ureteral sphincter with the cystoscopic scissors and simultaneous injection of oil into the ureter. Four subsequent injections of oil were made two days after the last injection the patient passed the stone. The second case recurred three injections of oil. The author states that only four or five per cent of ureteral stones are not relieved by intra-cal manipulation.

V. D. LESINA SE

## BLADDER URETHRA AND PENIS

**Bennett, A. K. V. Calculus of the Uterus. J. M. & S. I. 5. 97. 44.**

The recent experiences of Bennett in Mesopotamia to him the basis for a report of 70 cases operated for stone in the bladder. The author discusses the etiology of the condition as found in the people who inhabit certain marshy localities along the banks of the Tigris and the Euphrates. Studies in parasitology recently carried out in the laboratory of tropical medicine in Liverpool tend to show that certain worm plays a very important part in the

formation of vesical calculus most particularly the bilharzia worm which is endemic in Egypt the Soudan and in the western parts of Arabia

The worm is found in the portal and mesenteric veins but in these structures does not become markedly active. They commonly reach full development and sexual activity in the urinary bladder and rectum. Here the ova are deposited and multiply and in each spot of accumulation in the walls of the bladder great proliferation of the mucosa is produced and a spongy tissue resembling papilloma or epithelioma is produced. These papillomata are exceedingly friable and hæmorrhagic so that contraction of the muscle walls of either the bladder or the rectum may produce severe hæmorrhage. The worm gains entrance to the body by means of drinking water or through the skin. Men and boys are the greatest sufferers, only one per cent of females have been found affected.

As to treatment Bennett states that in papilloma perineal lithotomy with curettement of the bladder and removal of the spongy tissue is practised by the physicians of Egypt. For the removal of bladder calculi lithopaxy is the operation of choice by the surgeons of India and Turkey. Bennett however states that most of his cases were relieved by suprapubic cystotomy. He leaves no drainage above but inserts an indwelling catheter into the urethra which is removed on the third day. H W E WALTHER

Selmi M. Bladder Calculi in Infants (Il più piccolo ed il più grande dei calcoli vescicali da me curati nei bambini) *Polislin* Roma 1917 x 1 5  
ptat 1078

Selmi refers to two cases of vesical calculus in infants the first and the last in a series of 23 cases operated upon by him. The calculus in his second case weighed 75 gr. the largest not only of his own cases but among all of those reported in literature. Selmi prefers cystotomy to lithotomy in the treatment of vesical calculus and thinks that in all cases very careful radiologic investigation as well as cystoscopy should be made so as to verify the conditions in the genito urinary tract.

Referring to the surgical steps necessary to prevent recurrences the author thinks that in cases of calculus complicated by cystitis it is necessary to establish and maintain for some time a large external aperture from the bladder this is indispensable for the recovery of the cystitis and also prevents a rapid recurrence. The child operated upon for the large calculus 7 years old was a mere skeleton at the time of operation and is now in excellent health. W A BRENNAN

Legueu F. Bladder Wounds (Sur les plaies de la vessie) *J de méd et chir* Par 1917 vii 1

Legueu has observed 43 bladder wound since the beginning of the war. These rarely reached him in the first days of injury the men were seen only after they had been passed along by several ambulances. Only cases in which the bladder wound was

the predominant lesion are considered. When the bladder wound is coincident with a severe abdominal wound the latter indicates the gravity of the case and governs the treatment. Such wounds are excluded in this report.

The four factors which dominate the history of bladder wounds are (1) the immediate and remote benignancy of a certain number of these wounds some with perforation or even with the bladder entirely traversed have progressed without any grave complications (2) the frequency of recto sigmoidal communications (3) the existence of a concomitant injury of the pelvic girdle (4) the presence of foreign bodies in the bladder.

Six of the wounds observed ran a benignant course. Such are usually bullet wounds shell wounds show important tears and easily produce a septic condition.

The neighborhood of the bladder and intestine explains the frequency of fistule. In 13 of the cases there was a vesico intestinal fistula. The site of perforation cannot always be easily found and only in 2 cases was it found by rectal palpation. In these 15 cases there were 12 spontaneous recoveries without operation in a period varying from a few weeks to four months. The number of spontaneous recoveries shows the small need for early operation if a fistula develops.

Lesion of the pelvic girdle was observed in 29 cases or 50 per cent.

The immediate effect of such fractures is to create a path through which the urine easily reaches the exterior and the consequences of this are infection suppuration and general thermic reaction. When the fistula persists the end result very frequently is an osteopathic fistula of the bladder with the formation of calculi. There were 10 cases which showed calculous formation of this kind.

In the 43 cases treated a foreign body required removal in 12. This was in addition to those extracted before the cases reached the author.

Treatment should be immediate and include disinfection of the tract removal of fragments of bone etc. and extraction of foreign bodies. The vesical cavity should be thoroughly explored both by radiography and roentgenoscopy if these means are not available every other known method of surgical exploration should be utilized.

Such treatment does not suffice to prevent infective complications and it appears necessary as soon as possible sometimes on the first day to make a suprapubic cystostomy. The indwelling sound in such cases is only a make shift to be employed when nothing else can be done. This operation was done by the author 11 times in the first days of injury in 15 other cases it was done as a secondary operation. In all cases where an early operation was done recovery followed but even when done later drainage was good and cicatrization was hastened. Experience has shown Legueu that a median cystostomy is the best measure for primary disinfection of the vesicocutaneous wound. W A BRENNAN

Fowler H A Syphilis of the Bladder J A W  
1 971 1399

Syphilis of the bladder was considered rare for merely and its existence even denied in the last sixteen years however a number of authentic cases have been reported the clinical data of which was sufficient for considerable thought and study. The history of cystic lesions has three periods.

During the first period extending to 1870 cases of syphilis which came to necropsy with findings of ulcerous tumors or perforations of the bladder were considered specific in origin. Prokisch found 6 cases and Morgagni and Riccio 2 cases.

In the second period cases occurred in which the diagnosis was confirmed by the disappearance of all symptoms following antisyphilitic treatment.

The third period began in 1900 when Matzauer first described the cystoscopic appearance of tertiary syphilis of the bladder. Since then 40 cases have been reported. In 90% bladder neoplasia was found to occur in the secondary stage as found by routine cystoscopic examination. Lutsch also occurs also in the tertiary stage and in parasymphilitic diseases notably in tabes the bladder is almost invariably involved. Age and sex are no barrier. Tuberculosis and the associated bladder destruction is more frequently observed in males than more common in middle life.

Secondary lesions of the bladder appear within a few months after infection and are generally accompanied by lesions of the skin and other organs. The tertiary lesions on the contrary appear after much longer period up to twenty years. The bladder lesion may be the only clinical finding. The majority of cases so far reported belong to the tertiary period. A mild case of cystitis occurring during the secondary stage of syphilis suggests and calls for a cystoscopic examination otherwise the cystitis or a specific infection easily overlooked particularly as it disappears under mercury and mercury. Ninety cases of secondary syphilis of the bladder have been reported in males and the females. In all cases the bladder lesion is accompanied by secondary syphilis elsewhere of the skin mucous membrane etc. Macule papules and ulcerations have been described. In some cases the papules were disseminated over the bladder mucosa resembling condylomata. The ulcers are usually multiple round or oval superficial with slightly elevated edge and necrotic base. The location is more frequently about the ureteral orifices but may be found in other parts of the bladder. The adjacent mucosa is edematous the hyperemic vessels are injected and prominent. The remainder of the bladder appears normal.

Symptoms vary with the location and character of the lesion and at times are so slight that vesical lesions are found only during routine cystoscopy. With ulceration at or near the vesical neck symptoms of cystitis more or less acute are observed.

Frequency urgency and tenesmus may be marked and are not influenced by rest. Pain a constant symptom referred to the suprapubic area or perineum

radiating along the urethra to the rectum and to the lumbar region. Hematuria when present is not profuse and is always terminal. The bladder capacity is reduced. The urine is often clear in the presence of infection it is turbid. Spirochetes have been reported in the urine but not confirmed. By far the greater number of bladder syphilis cases so far observed belong to the tertiary stage. Gummata of the bladder develop as diffusely like all new growths and in the early stages produce little or no disturbance. Frequency may be observed hematuria when it occurs is sudden and profuse and may be the first and only symptom. Pain is inconstant varying with the location of the lesion and the presence or absence of infection as a complication.

As viewed by the cystoscope two varieties of lesions occur: gummatous ulcerations and polypoid tumorous growths. The former are more common. They are separately or in combination. Polypoid tumorous lesions are usually multiple and resemble canceration should not be advised until the therapeutic test has failed. The secondary lesions are superficial. The tertiary involve the deeper layers of the bladder wall and unless arrested may result perforation with peritonitis and perforation of the bowel. Syphilis is one of the etiological factors in the production of vesicourethral fistulae. Vesicourethral or vesicovaginal fistulae may result from prior infection of the bladder base.

Bladder syphilis is prompt to respond to specific treatment as is characterized by subinfection of all symptoms and the gradual disappearance of vesical symptoms. The treatment usually employed for a duration of six to twelve months has no influence whatever on either the symptoms or the lesions.

C R O C O V L

Thompson J E A Study of Modern Operations in Hypospadias of the Male Anatomical and Functional Studies of the Glandular and Obstructive  
97 x 4

The author classifies the varieties of hypospadias into (1) balanopreputial (2) penile and (3) preputial. The adult urethra develops in three distinct parts. The posterior part corresponding to the adult prostatic and membranous urethra developed from the embryonic urogenital sinus the penile portion developed from a longitudinal groove which appears on the genital eminence the glandular portion results from the tunneling of a special epithelial mass which appears on the under surface of the glans.

Operation is not justified in the perineal type with undescended testicles which are probably sterile and impotent. It is not necessary in many cases of the balanopreputial type with a straight penis. In all these operations is imperative. The suitable date for operation is between the sixth and ninth years. After puberty there is serious danger of an recto-urethral fistula which could tear the flaps apart.

With regard to operative procedure the ante-

rior varieties preference is given to penile and preputial flaps as in the Mayo and Duplay operations. A modification of the Russell operation is described. In the posterior varieties the Russell method is by far the most satisfactory. Bladder drainage is considered essential to success in the one stage operation and in the final stage of the two stage operation. Drainage above the pubes is preferred.

### GENITAL ORGANS

Robbins F W and Seabury F P. The Treatment of Chancroid. *J Am Med Ass* 1917 lxxv 127

The authors recognize the following clinical varieties of chancroid: (1) *ulcus molle* the common type with clean cut undermined edges; (2) *ulcus molle miliare* occurring most frequently on exposed surfaces in the loose skin; a papule rapidly becoming a pustule; (3) *ulcus molle elevatus* slightly raised above a mildly infiltrated base with slight tendency to spread and resistant to treatment; (4) *ulcus molle phagedenicus* the most severe form spreading rapidly and capable of great destruction.

About 60 per cent of all soft sores if kept rigidly clean get well in from four to eight weeks with no treatment other than calomel dusting powder. Thorough cauterization with nitric acid within the first two or three days will sterilize the sore so that healing will take place. The authors advocate the use of a 25 per cent solution of copper sulphate and the short high frequency spark from a rather fine pointed vacuum electrode applied directly to the sore for from one to three minutes. The point of the electrode is carried well down into any fissure or undermined edge and about one sixteenth of an inch into the doubtfully healthy area. Any exposed sore is then covered with a thick moist mildly antiseptic dressing changed frequently. If completely sterilized on the second day the wound will present a perfectly healthy granulating surface which begins to heal in a few days. If not the same procedure is repeated every second day.

This method of treatment has enabled the authors to report practically 100 per cent of early cures in a series of about sixty cases. H W FLAGGMEYER

Ramos C. Rupture of the Tunica Vaginalis in Hydrocele. (Des ruptures de l'hydrocele vaginale). *J d urol méd et chir* Par 1917 xi 45

Rupture of the tunica vaginalis in hydrocele is very rare. The first case in literature is reported by Bertrandi in 1757 and it has become less frequent since the introduction of improved surgical technique in the treatment of hydrocele.

Spontaneous rupture is rare and most cases are due to a traumatism by muscular effort. The author has observed two cases in Legueu's clinic: one traumatic and the other spontaneous. The traumatic case occurred in a man of 65 years with a left sided hydrocele. Operation by Legueu disclosed a vertical tear of the serosa about 3 cm long on the antero internal wall of the vaginal sac.

The spontaneous rupture occurred in a man of 49 with a left sided hydrocele. About 6 months before coming to the clinic the man observed that the tumor had altered its habitual shape and had become soft flaccid and considerably larger. There was no pain nor feeling of rupture. Operation disclosed a vertical slit in the serosa about 1 cm long and situated in the middle part of the anterior face. Both cases recovered.

The author reviews from the literature 7 traumatic cases, 6 due to muscular effort and 2 spontaneous cases. A consideration of the cases shows that there is no site of election for vaginal ruptures. Experimental research work done at autopsies confirms this view. Pre-existing lesions and the more or less sudden distension of the sac by a rapid increase of effused fluid are predominant factors in the mechanism of spontaneous rupture.

Clinically the constant and most striking symptoms are immediate change in the form of the tumor and scrotal edema. In many cases after absorption of the effusion and obliteration of the orifice of perforation the tumor is reproduced very rapidly.

W A BRENNAN

Cecil A B. Surgical Treatment of Seminal Vesiculitis. *Calif St J Med* 1917 xv 497

The author describes the anatomy, pathology and symptomatology of seminal vesiculitis and reports two cases and the surgical procedures followed.

While gonorrhoea plays an undoubtedly large part in the original infection, Cecil claims the gonococcus is supplanted by other bacteria and it is his purpose to make cultures at the time of operation as the study of the vesicles after death is inconclusive because of the known frequency of postmortem infection. The author also claims that in cases presenting symptoms of chronic cystitis it is not alone sufficient to rule out the question of infection of the kidneys and the cases of mechanical obstruction and intravesical causes but it is also necessary to thoroughly investigate the seminal vesicles. He reports two cases to support this contention.

The condition has been attacked surgically by four different methods, namely: vasopuncture with spermatozostic medication; vasotomy with drainage of the vesicles through the vas vesiculotomy and vesiculectomy. Vasopuncture has proved to be of considerable value but it has its limitations as in occlusion of the vas cases in which infection is walled off in a part of the seminal vesicle or is located in a walled off diverticulum of either the ampulla of the vas or the seminal vesicle. The same objections are offered to vasotomy. Cecil states that in cases of seminal vesiculitis which seem to persist in spite of massage it is of great diagnostic value for it is evident that if the ejaculatory duct is occluded on one side or both, massage of the seminal vesicles must be worse than useless. He believes that seminal vesiculectomy is the operation of choice.

In his operation he follows Young's technique using his tractor which avoids tearing the prostate.

and enable him to palpate on the instrument in the bladder and to rotate first one vesicle into view and then the other. He lays especial stress upon having an exaggerated lithotomy position. He avoids using a rectal plug as it causes discomfort and is liable to cause a rectal fistula. **LOUIS GROSS**

**Judd E. S. and Braasch W. F. The Advisability of Prostatectomy in the Presence of Cord Lesions. *Illn. M. J.* 97: 119**

Judd and Braasch discuss the advisability of the removal of the prostate in cases presenting signs of lesion of the spinal cord. Nine such cases have been operated upon at the Mayo Clinic. One of these died eighteen months after the operation. Seven report that they are in good condition and have no urinary trouble. One operated upon six months previously still complains of frequency of urine and of a slight degree of incontinence.

The authors believe that the question of operation should be decided according to whether the difficulty of urination is due to mechanical obstruction or not. This fact can be determined through cystoscopic examination and by observing the expulsive power of the bladder muscle. If the clinical evidence of advanced cord lesion is well marked

operation is contraindicated but in early cases or in those in which the tumor involves some portion of the cord other than that which controls the urinary mechanism the question of prostatectomy should be carefully considered. **G. G. SMITH**

# MISCELLANEOUS

**Eisenstaedt J. S. Mechanical Aids in the Diagnosis of Lesions of the Upper Urinary Tract. *S. & Ch. Clin.* 97: 1799**

The author discusses in detail the various methods of exact diagnosis used in genito-urinary diseases and contrasts them with the clinical findings. He summarizes as follows:

1. There are various methods for examination in the diagnosis of lesions of the urinary tract.
2. These overlap and supplement each other.
3. These include cystoscopic examination, urethral catheterization, X-ray and chromocystoscopy.
4. The clinical and laboratory findings should not be neglected.
5. The necessity for the use of these procedures lies in the fact that many serious lesions may pass under the mask of various other diseases.

**A. C. SOKES**

# SURGERY OF THE EYE AND EAR

## EYE

**Magitot Wounds of the Eye in War** (Les plaies de l'oeil en pratique de guerre) *Rev gén de clin et de thérap* 1917 **xxvi** 657

There are three types of eye injuries in war lacerations wounds of the posterior part of the ocular globe and wounds of the anterior part

Lacerations usually accompany complicated orbital fractures or maxillary facial fractures The treatment is disinfection of the region with lavage of the globe with hypertonic salt solution and enucleation The conjunctiva must be respected as much as possible so as to obtain after cicatrization a cavity well adapted for an artificial eye

Injuries of the posterior part of the globe can occur without wounding of the lids and may be (1) a wound of the external angle of the eye (2) a wound of the temporal orbital wall (3) an intra-ocular hemorrhage affecting only the posterior segment caused by a projectile passing through the neighboring tissues

The following signs suggest penetration (1) considerable chemosis (2) orbitopalpebral hematoma (3) protrusion of the globe (4) frequent but not constant presence of blood in the anterior chamber (5) soft ocular globe (6) loss of vision (7) immobile deformed dilated pupil (8) insensitive cornea

The author in general recommends temporizing expectant treatment with disinfection will suffice if there are other important lesions to be attended to

Wounds of the anterior segment are of two kinds either the eye partly empty shows extreme hypertonia or else there is a wound with preservation of the normal form and consistency This latter type is often considered to be a traumatic conjunctivitis when in reality there is a penetrating wound The patient should be carefully examined for signs of penetration When there is penetration with the foreign body retained an immediate toilet of the globe should be made The eye is then submitted to the action of a large electromagnet which will extract any magnetic body If the foreign body is not magnetic a radiographic examination is made to find if the body is intra or extra-ocular Certain metallic foreign bodies are well tolerated by the eye but others such as copper are badly tolerated

In wounds of the anterior segment with hernia of the iris or of the ciliary body it is necessary to excise these fragments Enucleation should be the exception An effort should be made to cover the conjunctival wound with the mobilized conjunctiva

The author describes his method In the case of infection it may be necessary to enucleate

Regarding sympathetic ophthalmia the author says that he has not observed a single case during the war

W A BRENNAN

**Kearney J A The Appearance of the Fundus Oculi in Certain Intracranial Conditions**  
*Med Rec* 1917 **xvii** 720

Thirty five cases of brain tumor were observed and thirty two cases operated upon From the standpoint of vision a decompression is advised before the oedema becomes densely opaque because when this appears gross destructive changes have taken place in the nerve and the time is passed when good vision may be assured By an ophthalmoscopic examination of the fundus of the eye many of the brain tumor cases are diagnosed as such for the first time only when sent to a hospital It is of great importance therefore that every patient who complains of uncontrollable persistent headaches should have a careful ophthalmoscopic examination

Intracranial hemorrhage at birth is responsible for 70 per cent of the spastic type of paralysis in children and 20 per cent of the resulting idiocy and feeble-mindedness now existing One of the earliest indications of the existence of increased intracranial tension is determined by an ophthalmoscopic examination of the fundus of the eye There is usually seen in the fundi of infants eyes shortly after birth when an intracranial hemorrhage is present a general oedema blurring all retinal and disc details or a mild oedematous blurring of the nasal half of the disc or rarely a measurable oedema occupying the entire surface of the disc This observation is important because it indicates an increase in the pressure of the cerebrospinal fluid and lumbar puncture findings usually verify it

Almost 1 400 children having spastic paralysis with or without mental impairment of ages varying from 1 day to 20 years have been examined with the ophthalmoscope to ascertain the presence or absence of an increased intracranial pressure due to hemorrhage and of this number 300 children have shown the distinct oedematous changes above described that is about one child in every five examined

In cases of recent fracture of the skull and especially basal fractures an increase in the intracranial tension is usually the most damaging factor

Frequent and careful observations are made while these patients are in bed In cases uncomplicated by an increase in the intracranial tension the retinal oedema gradually subsides Occasionally in some of the routine examinations after the first twenty four

hours followin the accident an increase is noted in the general edema that prev ously ex st d or to the edema that heretofor blurred equally all details there is a decided added obscuration of the nasal half of the disc and its margins These observations are valuable because they indicate quite arly a ri e in the intracranial pressure and the spinal mer curial manometer v ll conhrm it at lumbar punctu e

It is ad ble that all cases of fracture of the skull be placed t compl t rest in bed with an ice helmet to the he d and free catharsis maintained If no s gns or symptoms r ferable to an increase in the pressure of the cerebrospinal fluid develop the above treatment is all that is neces ary but if the intracranial tens on is increas d up to nearly double the normal then n sel ted c ses repeat d lumbar punctures a e done dep nding upon the nature of the symptoms If howcv the tension of the cerebrosp nal flu d i found to be double the normal or even more at lumbar puncture whether o not the pul e rat is lower d then t is ad isbl to do a simple decomp r ss on op ration b fo c a poss bl col lapse of the medulla occurs EDW RD L CORNELL

Aymard J L A Ca tilage Pro thesis for tl e Ey  
L 1 L d 97 644

The failure of the art ficial eye from a osmetic point of view d p nds pon immobility and depres sion The former co dit on s due to the abs nce of a mass of t ssue t tting inside the artifi al glass casing and the latt r to the fact that a sph has been replaced by a sh ll

The author is now employing spheres constructed from costal cart lage as natural tissue prosth s s for the eye T vo h mu ph re of cartilage are trephined from the eighth co tal cart lage and a e h d to gether with ca tilage o with catgut to form a sphere

In primary enucleation th surg on plac s the cartilage sphere ins de Tenon s capsule and sutures the same then sutur s the conjunct va Whether cartilage spheres can be introduced into a s pt c ye socket rema ns to be seen The author th nks it worthy of trial V C HUNT

#### EAR

Ma t no P J Lat nt Otitis of Early Inf ncy (Ot  
t sl t nt s d lap m e nfa ) A ch d med  
d f P 97 476

The frequency a d gravity of otitis n infants renders its study nte sting to the pediat cian

Autopsies of infants show how often otitis passes unnoticed during life Barbillon in 27 autops es of infants dying during the first month of life found suppuration of both ears in 5 Ponick found suppuration of the ear n 91 per cent of infants treated for bronchopneumonia or gastro enteritis Gomerz found 90 per cent of suppurative otitis in infants dy ng with different affect ons

In a great many ases the otitis of infancy re main latent for a considerable time without either local zed pain or otoscopic signs Many morbid co dit ons cons dered as primary infections of the d gestiv t act pulmonary passag s etc if they are not secondary to oto naso pharyngeal infection r at least concomitant and due to a common cause This cause has generally a purely anatomic basis due to some d fect of d velopment

Diagnos s of otic infections ex lud ng cases of spontaneous pe foration or of rapid localization of otoscop c s gns i o dinar ly difficult and the del y mav giv rise to complic tions which result fatally

It m v be admitted that in ll general diseases of nfancy the v st n of an otitis media is the rule When a tcb il ept c r m condition pe sists with out other apar ntl attributable c use the ear is probably th cause L en when there re o cl ar loc l symptoms it is well to p actice a para entesis which if done arly and ar fully br ngs about r covery in all pos ti e cases and does not en tail anatomic or funct onal complicat ons in nega ti e cases W A BREN A

Sh mbaugh G E Suppurative Otitis Media  
ith I ralysis of th E ternal Re tus S g  
Cl Ch g 97 841

The patient was a man 68 years old who had had a profuse purulent d sch rge f om the right ear for ight months A ad al mastoid op ration was p rformed and becau e of pers tence of discharge the wound was op ned a d tubal cells curetted d ring whu h th internal arotid a tery was punc tur d Firm pa k ng ontrolled h morrhag

A few d y lat the e occur d pa aly s of the right exte nal rectus m scl e whi h per ted f r eght months Th p stent d harge whi ch continued fo m nth after the last ur ttage as well a the affect on of the s xth nerve was probably du to involvement of the apex f the petro sport on of the py amid OTTO M ROTT

# SURGERY OF THE NOSE, THROAT, AND MOUTH

## NOSE

**Guthrie D** A Clinical Lecture on Some Nose and Throat Diseases of Childhood *Brit M J* 1917 ii 355

The author discusses briefly many common affections of the nose and throat such as adenoids and hypertrophied tonsil the tonsil operation foreign bodies in the nose and air passages It is not necessary to examine for adenoids with the finger in the presence of very large tonsils In such cases the presence of adenoids may be assumed

Guthrie believes that the tonsils should be removed from all patients in whom the cervical glands at the angle of the jaw show enlargements He mentions rheumatism as another indication Many systemic conditions are due to the absorption of infection or toxins and the tonsils of every patient suffering from some systemic condition ought to be carefully examined

JAMES J KING

**Skillern R H** Diagnosis and Treatment of Sinusitis in Infants *J Am M Ass* 1917 lxxv 895

The author is of the opinion that so called sinusitis in infants is misnamed and bears out the assertion by a consideration of the anatomical development of sinuses He takes the age of five as the dividing line between infancy and childhood in sinus development Of the accessory sinuses the ethmoid is the only one which is well developed the maxillary is small and rudimentary Under two years the sphenoid is but an indentation the frontal has not yet made its appearance After the sixth year the true sinuses have become developed

Localized sinusitis in infants has not come under the author's observation nor has he found a case report in literature Any disease which affects these sinuses in infants under two years does not limit itself to the maxillary sinus or ethmoid cells but affects the surrounding tissue as well

The symptoms are of unusual severity affecting the mucosa and the soft spongy underlying bone destroying the side of the face involved and often rupturing externally either above or below the orbit In recent cases there is a profuse nasal discharge The ethmoid cells are separated by layers of soft young bone which are as susceptible to disease as its own lining membrane

The affection spreads to the canaliculi and appears externally on the face If seen early a thorough endonasal curetting of the ethmoid cells and antrum will prevent an external fistula

Sinusitis in children over five years of age ap

pears as a common cold in the head the discharge continuing until a sinusitis is present It does not run so severe a course as in infants and has a greater tendency towards chronicity

The author urges careful and thorough examination of these cases Differentiation must be made from adenoids with postnasal suppuration one sweep of the curette is sufficient The source of the discharge can be established by means of the nasopharyngoscope The author does not recommend the puncture needle Transillumination is worthless The roentgen ray is of positive assistance since it gives an idea of the size shape and condition of sinuses In the beginning of an attack the condition can be brought under control by general and intranasal treatment

Vaccines are found more useful than in any other sinus disease If an operation is indicated it should be done at once The disease progresses so rapidly that unless immediate operative procedures are instituted extensive radical measures will be required to save the child's life There is a previous stage during which proper treatment would have prevented exophthalmos swollen lids and hideous deformity from an abscess about to rupture

Removal of the anterior and middle turbinate followed by antiphlogistic measures are recommended The author first performs intranasal extirpation of the diseased ethmoid cells and maxillary antrum with subsequent application of an organic silver salt If there is considerable redness and swelling a puncture large enough for a drain can be made on the face

The author does not favor the Caldwell Luc or any similar procedure through the canine fossa for maxillary sinuses If the antrum alone is affected any thorough intranasal operation will give a good result

M A BERNSTEIN

**Ingals E F** The Intranasal Drainage of the Frontal Sinus *Tr Am Laryngol Soc Atlantic City* 1917 May

Ingals believes that in a large majority of cases of chronic frontal sinus disease free drainage is all that is necessary and that vigorous curetting is a bad practice although gentle removal with a curette of polyp or granulation tissue if present would undoubtedly hasten the cure

The furor for extensive mutilating operation on the frontal sinus has had its day and now more conservative intranasal drainage is a practice that is generally accepted

The author's attention was first called to the benefit obtained from intranasal treatment in 1893



when he succeeded in curing two cases by intranasal treatment as neither of them would consent to an external operation. As drainage into the nose was a prerequisite for treatment he devised a burr with a safety guide to be run into the nasofrontal duct so that the duct could be enlarged permanently.

This burr made a canal 1.6 mm in diameter which however had a tendency to contract. To prevent the latter a metal tube was inserted into the canal. This metal tube as superseded by the spring gold self retaining tube now in use. This may be worn for a number of years and permits free irrigation by the patient.

The author is convinced that the operation can readily be performed by any properly equipped laryngologist and has placed the percentage of recovery of properly selected cases as high as 95 per cent.

#### Thompson J A An Unusual Infection from Ethmoiditis J S J p 97 x 643

The infection is one of sciatica which cleared up after opening the bulla ethmoidalis from which a few drops of pus escaped. No other portion of the ethmoid was diseased. The patient made a complete recovery. Orr M R Jr

#### Coldstein M A Sarcoma of the Nasal Septum Laryngo Epiglottidean Cyst T A L J g l A Atl Cty 97 M y

The patient a male aged 56 years eighteen months previous had begun to be troubled with occasional obstruction of the left side of the nose continuing about a month followed by relief and then recurrence. There was no history of epistaxis. Later the case had been two or three attacks of nose bleed not very profuse. There had been no headache or pain of any kind. The patient had lost fifteen pounds in weight in six months.

Nasal examination showed a mass on the septum obstructing the left side. The right surface of the septum was infiltrated and thickened causing some obstruction on that side. The nasopharynx was negative. The throat negative. There was no evidence of involvement of the accessory sinuses.

At operation the mass together with the entire septum was excised. Recurrence to place after one month. Histologic examination of the mass showed round cell sarcoma.

The second case a boy twelve years old had been hoarse since he was one month old. This had been ascribed to a cold and no laryngologic examination had been made. The condition seemed to remain quiescent until shortly before the boy was brought to the author for examination at which time he had become very markedly dyspnoeic. He was anemic and frail not cyanotic and was unable to speak above a whisper. There had not been much difficulty in swallowing and there was no regurgitation of food. Laryngeal examination showed a mass the size of a walnut in the left side involving the larynx epiglottic region. There

was no fever. The mass was yielding to the touch and could easily be palpated with the finger. The mass was incised the contents consisting of clear yellow sticky fluid. Subsequent examination of the vocal cords examination of which had previously been impossible because of obstruction of view by the mass was negative. The boy regained the use of his voice though through habit he would speak in an undertone. There has been no recurrence of the cyst to date and the boy now speaks in a normal voice.

#### Caenanau J A A New Method of Dealing with the Nasal Septum III M J 97 x 16

In his new method dealing with the nasal septum the author advises elevating the mucous membrane on but one side (concha) except where a spur or ridge exists and then he elevates the mucous membrane on both sides only in that area. He leaves the greater part of the articular structure in contact moving with his septum shave only small strips sufficient to adjust the parts to the median line thereby preventing the possibility of a perforation. Where the bony part is deflected he makes multiple fracture in the deflected area with his bone forceps and pushes the bony septum to the median line. In cases where the cut edges of the flap do not come together he puts in stitches. He always packs in the side of the convexity that existed before the operation.

### THROAT

#### Stuart Low W Contrabutory Cause of Cancer of the Throat P L L d 97 xc

The author mentions the following as being contrabutory causes of cancer of the throat:

- 1 Syphilis
- 2 Oriseps
- 3 Adenitis of oral secretions
- 4 Smoking
- 5 Drink
- 6 Eating excessively spiced food
- 7 Alcohol obstructions

The action of the above factors is explained on the ground that they irritate or render the throat less resistant to withstand irritants either by denuding the mucosa of protecting epithelium or by diluting or drying the protective secretion the mucus.

Orr M R Jr

#### Dwyer W T Control of Bleeding in Tonsillectomy L S J p 97 x 688

Where simple pressure is not sufficient to control the bleeding the author recommends catching the bleeding point with a Carmalt clamp and making a slight traction. Then with a full curved needle held in the needle forceps and threaded with iodine catgut a stitch is taken just above and another one just below the clamp. The second needle is threaded to the free end of the first suture. By releasing the clamp a purse string suture is made. Orr M R Jr

Mackenty J E Surgical Treatment of Laryngeal Cancer *Boston M & S J* 1917 cxxvii 110

Owing to the fact that very few cases of laryngeal cancer are seen early enough to justify treatment by thyrotomy the author considers either hemilaryngectomy or total laryngectomy advisable. The author's technique is given in detail. A few of the important points mentioned are as follows:

1 The operation should be so conducted as absolutely to prevent blood entering the trachea during the operation.

2 Wound contamination from the open trachea and pharynx should be guarded against.

3 In total laryngectomy two lines of drainage are indicated: one just below the pharyngeal closure and the other just behind the tracheal stump where it is secured to the skin. The latter is of prime importance, crossing as it does the direct path of mediastinal infection. In this situation unprotected weak iodoform gauze is used to promote adhesions. If the infection from above can be delayed a few days and in all of the author's infected cases it has been so delayed the danger zone behind the trachea is eliminated and a primary union between the trachea and skin promoted.

4 A nourishing and properly balanced diet is essential from the start. The only means of accomplishing this is by the use of the feeding tube introduced into the oesophagus through the nose and left in place until the wound is healed. In one case the patient was thus fed for two months without producing oesophagitis.

5 When infection occurs strict attention to drainage is imperative. The dressings should be changed every two hours or oftener during the day and every three or four hours during the night. At each dressing a negative pressure pump is used to remove the pus and tenacious mouth and pharyngeal secretions from the wound.

6 When arytenoids are involved it is almost certain that the disease has entered the lymphatics of the neck, necessitating their removal. If the median line is encroached upon the dissection must include both sides.

7 As much of the anterior wall of the oesophagus as conditions demand should be removed. As much as one inch downward anteriorly and one third of the circumference may be removed without producing subsequent stricture.

8 Diseased teeth should be removed at a period as long before the operation as possible.

9 In total laryngectomy the one stage operation is preferred. Otto M Rott

## MOUTH

Munger C E Tuberculoma of the Tongue *Tr Am Laryngol Ass N J* 1917 May

The case is reported of a male aged 30 years whose tongue presented a crater like cavity situated on the dorsum at the junction of the middle and posterior thirds in the median line, the prebase of the tongue. At the bottom of the crater was a marked ulceration covered with a yellowish slimy secretion and from the central ulceration were narrow sharply marked ulcerations radiating to the circumference of the thickened and indurated mass.

The surface of the swollen mass was yellowish in color and there was marked and exquisite tenderness upon the slightest pressure, with much pain at every movement of the tongue. This pain was localized and not radiating when the tongue was at rest. There was present also nigrities.

While the tubercular ulcer may be primary or secondary, a primary tubercular lesion of the tongue is extremely rare, although a few cases of tubercular infection of the tongue following traumatism have been reported. Speaking generally, the tongue is more often inoculated from the lungs than the lungs or larynx from the tongue.

The case reported presented a marked deviation from the usually reported situation of tubercular lesions on the tongue, which have almost invariably been stated to occur either on the tip or sides, this one being on the dorsum, a site on which a gumma is usually found.

The prognosis is not dependent upon the lesion itself but depends wholly on the decision as to whether the patient is suffering from concurrent lesions in other parts of the body which are not susceptible to improvement or is suffering from pulmonary tuberculosis where there is a tendency to fibrosis. If the latter is the case, there is a fair degree of certainty that the tongue lesion may heal without local therapy, but if the pulmonary process is acute with caseation and necrosis active, there is little chance of the tongue healing.

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## GYNECOLOGY

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## WAR SURGERY AND THE LITERATURE

TREMENDOUS economic political and social changes due to the forces set in motion by the war are being and will be wrought for some time. The manner and degree to which medical science will be altered by the experiences of this war period remain to be seen. The best most reliable and easiest method of keeping posted on surgery as modified by war practice it is generally conceded is through the INTERNATIONAL ABSTRACT OF SURGERY for no other publication in the world pictures so completely clearly and concisely the present surgical status as gathered from the medical journals of all languages. It may be pointed out that many of the important contributions on war surgery are found in foreign journals not readily accessible to the majority of surgeons in this country.

It is the purpose of the editors of the ABSTRACT to publish from time to time collective reviews dealing with various war surgery topics. In this month's issue appears a review of the recent literature on War Injuries of the Blood Vessels by Dr D N Eisen drath of Chicago which speaks for itself and needs no comment. These collective reviews present in an unprejudiced manner the literature on the subject in resume. For future issues reviews are in preparation dealing with Oral and Plastic Surgery Gunshot Wounds of the Chest and other subjects.

Most of the abstracts of articles bearing on the numerous phases of war surgery will be found in the text under other headings than

Military Surgery in accordance with our scheme for the anatomical classification of material. To make all of these articles readily available to the reader specially interested in the literature on war surgery the abstracts bearing on war surgery appearing in this issue are listed in the Table of Contents under the heading Military Surgery.

# INTERNATIONAL ABSTRACT OF SURGERY

MARCH 1918

## COLLECTIVE REVIEW

### WAR INJURIES OF THE BLOOD-VESSELS

By DANIEL N. EISENDRATH, A.B. M.D. F.A.C.S. CHICAGO, ILLINOIS

THE number of wounds of the blood vessels during the present war has been far greater than that of all previous wars of which we have a record. During the Franco-German war of 1870-71 only forty-four aneurisms were reported on the German side. During the Russo-Japanese war eighty-eight were reported while on the Serbian side alone during the Balkan wars of 1911 Soubotitch (85) was able to collect 105 aneurisms. As early as September 1915 Zahradnický tabulated three hundred and forty-eight aneurisms reported by the surgeons of the armies of the central powers. Since this contribution a large number of cases have been reported by Makins (60), Bier (9), von Eiselsberg (69), Swan (quoted by Cowell 21) and many others. This striking increase in the number of blood vessel injuries is due to the difference in the character of the weapons and missiles employed during the present and the Balkan wars as compared to those used in all previous wars. In the latter campaigns the majority of these injuries were due to penetrating, e.g., stab wounds. The large number of blood vessel injuries during the present war are due to the use of metal covered bullets and of explosive shells and bombs. Kuettner (51) believes that the shell fragments cut the vessels like a knife and cause external bleeding while aneurisms occur more frequently with the steel-jacketed bullets.

#### NATURE OF WOUNDS

Blood vessel injuries can be best divided into (a) contusion (b) penetrating injuries (c) dry wounds (d) arterial or arteriovenous aneurisms

(a) *Contusions* That a contusion alone of an artery or vein does occur can no longer be doubted. A localized or diffuse thrombosis may take place even when the wall is only contused (Makins 60) and result in gangrene secondary to hæmorrhage or embolism, the latter being especially frequent in localized thrombosis. Thrombosis from contusion is more commonly observed in veins than in arteries and less trauma is necessary to produce it.

(b) *Penetrating injuries* The more or less complete severing of an artery is more frequent today than a perforation involving both sides of the lumen. Such a through and through injury occurs oftener in veins than in arteries. In the latter a frequent form of injury is a lateral puncture of the vessel wall because wounds produced by fragments of shells and bombs (Makins 60) more nearly resemble incised wounds frequently being merely minute punctures. Simultaneous occurrence of an injury to a blood vessel and of a fracture is a serious combination because the opening in the vessel may be tamponed by the bone fragment and hæmorrhage occur during transport by loosening of the fragment. Similarly a thrombosis of the perforation may occur at the time of injury and secondary hæmorrhage occur as the result of the dislodgement of such a plug in the vessel wall. Sencert (82) says that in the case of a wound of one of the large vessels the life of the patient depends upon the extent of the cutaneous lesion. If this is large death occurs as a rule if it is small the blood may escape into a neighboring splanchnic cavity or it may fill the surrounding tissues. In a certain number of

cases the hæmorrhage is insignificant and there is spontaneous hæmostasis. This is more frequently observed in cases of complete section of the vessel than in lateral wounds and also in cases where the vessel has been subjected to contusions and ruptures of its interior coat. He has observed twenty cases of injuries of the axillary femoral and popliteal vessel arriving at the ambulance in which there was already spontaneous hæmostasis.

(3) *Dry wounds of vessels.* Some very important reports of so called dry wound of vessel have recently appeared in the French literature. Fiolle (8) says that these dry wound occur oftener than is generally supposed. He has observed seventeen in six vessels. The brachial artery is most often involved and the projectile always a piece of shell pushes or drags the vessel rather than cuts it so that it ruptures when it exceeds the limits of elasticity. It is possible that the heat of the projectile is an important factor in causing spontaneous hæmostasis. Complete section of an artery occurs in the dry wound more often than lateral wound. The piece of projectile may act as a tampon and stop hæmorrhage or the end of the vessel be closed by a thrombotic plug. Sometime a dry wound is found with no means to explain it. Such dry wound are a frequent source of secondary hæmorrhage.

In a more recent paper Ferrenot (73) reports four cases in all of which a clot strong enough to prevent the escape of blood from the completely severed vessel was found. He believes that the dry wound occur often when the projectile is a piece of shell than a bullet. The latter make a clean wound with considerable hæmorrhage and the development of a hæmatoma while shell injuries give rise to contused wound in which a large injured vessel may be incorporated in the lacerated tissue and even if the vessel be completely divided its coat are strongly compressed against each other by one of the surface of the projectile.

The frequent occurrence of the dry wound without immediate hæmorrhage but tardy bleeding e.g. eight days in a case of Planson's shows the necessity of a thorough systematic exploration of the vessels of the region when the site and direction of the wound excite suspicion as to the nature of the lesion. Hours or weeks may elapse between the time of injury and the hæmorrhage. I shall refer to the symptoms of these dry wounds in the section on *Diagnosis*.

(d) *Arterial and arteriovenous aneurisms.* Arterial aneurisms may follow contusions of the vessel

wall as well as penetrating wounds. The first effect of a contusion is to cause the wall to become thinner then a thrombus forms. The seat of injury gradually yields and an aneurismal sac forms.

In general the term aneurism should only be applied when there is a well formed sac and not applied to the first stage in which only an arterial hæmatoma is found. The evolution of an arterial aneurism is usually as follows. At the time of injury there is a considerable primary spurt of blood but this ceases spontaneously except in the case of the largest vessels of the trunk. Aside from this external hæmorrhage the most common sequel of an arterial wound is the formation of a hæmatoma whose size depends upon the resistance of the tissues. If the clot become firm there may be danger of gangrene from pressure on the collateral vessels (Makins 60). The hæmatoma usually becomes encapsulated within two to three weeks by a sac formed from the connective tissue of the immediately adjacent structures. The sac is lined by endothelium and the ragged edge of the wound in the arterial wall become smooth (Fig. 1).

Graf (31) found that only a minority of but forty three cases encapsulated to form aneurisms. The majority beget to bleed from the second week on. The opinion of Graf is not shared by any other writer the majority believing that if the patient does not die from the primary hæmorrhage an aneurism will form or a rupture occur (Exner 7).

Arteriovenous aneurism it may be concluded from a study of the statistics of various writers have been found more frequently than those of the pure arterial type especially in the larger vessel. Bier (9) in one hundred and two war aneurisms found that forty five were arterial and fifty six of the arteriovenous variety. In one case a single bullet had caused three aneurisms one of the subclavian and the innominate arteries respectively and an arteriovenous of the subclavian artery and vein. Makins (60) has observed a similar case. St. an (quoted in Cowell 21) found that in one hundred and forty six recently published cases one hundred and six were arterial aneurisms and forty of the arteriovenous variety. In the larger vessels the proportion of arteriovenous to arterial aneurisms is greater than in the smaller vessel. Makins (60) has found that arteriovenous aneurisms occur far less frequently than the pure arterial variety.

There are four chief forms of arteriovenous aneurism (Fig. 2) viz (a) There may be a pure perforation of the artery and vein which

is rare the sac being either on the distal side of the artery or between the two vessels (b) Complete division of both artery and vein may occur with the formation of a common cavity into which the four vessels open. This retains the form of a hematoma for some time extends rapidly and gangrene or secondary hemorrhage are not uncommon. Such cases are not numerous and generally demand early surgical treatment either on account of rapid extension or the occurrence of one of the complications indicated. (c) In the great majority of cases the wound in the artery is lateral in character associated either with a lateral wound, a double perforation or a complete division of the vein. (d) The sac may sometimes depend mainly on the venous injury, the vein being widely opened or completely divided while only a small opening persists in the artery. In such cases the wall of the sac is thin and ill developed.

The occurrence of a pure aneurismal varix, i.e. a direct lateral anastomosis usually follows the passage of a missile between the artery and vein. Cases of varicose aneurism where a sac forms between the artery and vein are more common than those of direct anastomosis of the two vessels, i.e. aneurismal varix. The close proximity of the popliteal vessels of the femoral vessels and to a less extent in the groin and of the vessels in the carotid sheath account for the greater frequency of aneurismal varices (Fig. 3) in these regions than elsewhere according to Matas (Keen's Surgery Vol. V).

The sac of a varicose aneurism scarcely ever contains a clot because the circulation is too active to permit of the formation of a clot. The interior of the sac like that of an arterial aneurism is lined by a smooth layer of endothelium which has formed by proliferation from the interior of both vessels.

The distant and remote effects of arteriovenous anastomosis will be marked in proportion to the importance of the vessels involved. It is important to bear in mind however that the aneurismal varices of the neck and upper extremities are especially well tolerated; they give rise to comparatively little subjective disturbance except the noises which sometimes are heard by the patients themselves. In the lower extremities the effects of the oversupply of blood and damming back of the venous circulation are more pronounced.

#### COMPLICATIONS OF VESSEL INJURIES

Makins (60) found that the most common of these are symptoms dependent on the pressure

of the effused blood and clot on neighboring structures, the development of peripheral gangrene, the occurrence of secondary hemorrhage, the detachment of emboli from the thrombus and very rarely the sequence of inflammation from secondary infection. These complications occur usually comparatively early before a definite false aneurism has formed.

Secondary hemorrhage may occur after two or three days or later after about ten days. The earlier variety is the less important. The latter form of secondary hemorrhage is vastly more dangerous. It may show itself in two forms either a rapid extension of the swelling in the limb or as an external hemorrhage. It is rare for this form of hemorrhage to depend on septic infection of the aneurism itself. It rather appears to depend on a defective effort at localization which allows some part of the limiting boundary of the clot to give way often as a result of infection of the surrounding tissues or as a result of a rise in the general blood pressure accompanying increased activity and perhaps from free movement of the limb on the part of the patient.

Schlossman (70) is of the same opinion as Makins (60) and thinks that all late hemorrhages are due either (a) to erosions of vessels or (b) to primary vessel injury. The former (erosions) may be due (a) to a fragment of a fracture which has tamponed the vessel and become displaced and (b) to infection especially after shrapnel injuries then it is venous in origin.

Secondary hemorrhage especially in the dry wounds referred to previously may be due to the detachment of the clot plugging the end of the vessel or again hemorrhage may occur from the elimination of a necrosed piece of tissue which opens a contused vessel. Gregoire (33) urges for this reason that no patient with a vascular wound should be discharged without a proper operation.

#### EFFECTS OF BLOOD-VESSEL INJURIES

This question has been especially studied by Makins (60). He found the heart excited and apparently enlarged after wounds of the vessels, this being more marked when there was an arteriovenous communication than after a simple arterial wound. Quite pronounced cardiac murmurs are present for a short time but gradually disappear. They are due to the transmission of the aneurismal bruit to the heart and are most frequently observed in carotid and femoral aneurisms but never in those of the arm.

In arteriovenous aneurisms there is always dilatation of the superficial veins resulting in varicose enlargements and ulcers. Pain may be



a very marked symptom if adjacent nerve trunks are compressed or are later included in the cicatrices following absorption of the hæmatoma.

Gangrene may result from pressure upon the collateral circulation of the artery involved (Makins 60).

It is evident that the greater the deviation of the blood stream the more marked will be the effects of venous obstruction and arterial ischæmia. These local effects are manifested as varices and oedema followed by thickening and connective tissue hyperplasia. Sometimes an elephantiasic condition develops as the result of persistent venous and lymphatic stasis. Dusky discoloration or cyanotic hue in the legs has occasionally been noticed.

#### SYMPTOMS AND DIAGNOSIS

1 *Signs of arterial aneurisms*. All observers agree that the murmur is louder and harsher in traumatic aneurisms than in those due to disease of the vessel wall. The murmur is heard more widely in a distal than in a central direction in arterial aneurisms while in the arteriovenous variety the murmurs are conducted in both directions i.e. toward the heart as well as distally. The systolic murmur in an arterial aneurism varies greatly in intensity, depth of tone and musical character according to Makins (60). It is loudest where the artery and aneurism communicate as the opening in the vessel wall becomes smoother and the aneurismal sac more perfectly formed the murmur becomes softer and deeper. During the early stages of the formation of an arterial aneurism i.e. during the hæmatoma stage the pulse in the limb is rapid and weak and may be obliterated owing to pressure of the clot on the vessel. Makins (60) strongly emphasizes the importance of auscultation as a means of determining the existence of a patent opening in the wall of an artery since it is the only method of making a positive diagnosis in some cases e.g. where no pulsation is to be detected in a swollen thigh or calf. The expansile character of the pulsation is never as marked in a traumatic as in an aneurism due to disease.

2 *Signs of arteriovenous aneurisms*. (1) *Bruit*. This may be short or harsh or even slamming like the whirr or buzz of machinery. The loud systolic murmur is conducted widely usually peripherally and to a much less extent centrally. The diastolic roar is conducted in either direction but as might be expected more freely in a central direction in the vein. In some instances the murmur may be conducted by the whole mass of the tissues of the limb and be audible wherever the stethoscope is placed upon the surface. The height of the pitch

of the murmur is a valuable guide to the exact site of the arteriovenous communication. It is highest and loudest immediately over this spot the tones gradually soften and deepen in either the upward or downward direction as the stethoscope is moved along the length of the column of blood in the course of the vessel.

(b) *Thrill*. This is not a valuable localizing sign and is in no way comparable to the pitch of the murmur as indicating the actual point of communication of the artery and vein. It is intensified with each cardiac systole. When the murmur and thrill are present together the diagnosis is unmistakable. When an arteriovenous aneurism exists in the subclavian the murmur and thrill will be heard in all of the superficial veins of the neck and arm down to the hand. In the femoral region the thrill will be transmitted to the ankle below and umbilicus above. The combination of a purring thrill, continuous buzzing murmur reinforced at each systole, wide centrifugal transmission of the murmur and pulsation and evidence of stationing of the superficial veins clinches the diagnosis of arteriovenous aneurism according to Matas (Keen's Surgery, Vol. V).

The differential diagnosis between aneurismal varix and varicose aneurism can only be made clinically when the vessels are situated superficially. Aneurismal varix is characterized by the presence of a vaguely outlined hemispherical swelling which may be felt through the skin or the cicatrix and rarely exceed a walnut in size. It can be made to disappear by gentle steady pressure. It may also be made to disappear by compression of the main artery on the proximal side the swelling reappearing after the removal of the compression. Compression below on the artery or vein will increase its size and intensify all the aneurismal signs. If the point where the thrill and murmur are heard with the greatest intensity is compressed directly all the physical phenomena will cease at once (Vanzetti's sign).

In varicose aneurisms the tumor formed by the intermediary sac is larger it cannot be altogether reduced either by direct compression or by compression on the proximal side of the artery. Vanzetti's sign cannot be obtained as readily as in varicose aneurism.

From arterial aneurisms the differential diagnosis is made by the purring thrill and the continuous machinery bruit which is reinforced by every systolic contraction and is propagated centrifugally and centripetally along the vein. In addition to the absence of all these accessory signs the murmurs heard in arterial aneurisms

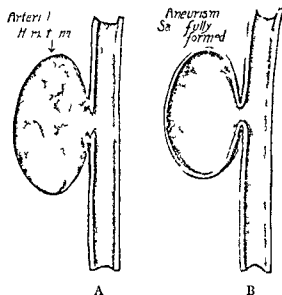


FIG. 1. Stages in the evolution of an arterial hematoma following gunshot wound of an artery or of both vein and artery to form a traumatic aneurysm.

(a) A large hematoma lateral to the vessel communicates with lumen through a wound in wall of artery. Note ragged character of arterial wound in early stage.

(b) Aneurysm fully formed. Note smooth character of interior of sac and the rounding off of the edges of wound in artery.

are intermittent and heard only during the cardiac systole.

Differentiation of arterial and arteriovenous aneurysm is based upon the absence in the former of disturbances in the venous circulation: lack of pulsations in the veins; absence of thrill and loud purring and of vibratory murmurs transmitted laterally along proximal and distal veins.

(c) *Signs of dry wounds.* Both Fiolle (28) and Perrenot (73) agree that the signs are quite deceptive. The principal ones are absence of the pulse distal to the point of injury; radioscopic evidence of the projectile and the location of the injury. The latter should always arouse suspicion if it is in the path of the vessels of the region involved. When such a dry wound is diagnosed or even considered the orifice of entry should be ignored and the usual incision for exposure of the vessels made. One must remember that absence of the pulse may also occur in connection with thrombosis of the vessel. The most reliable method of diagnosis in these dry wounds is an exploratory incision.

#### HOW TO TEST THE COLLATERAL CIRCULATION OF A LIMB

The Moszkowicz (64) test has been depended on by some observers (43) in order to determine whether gangrene can be avoided after opera-

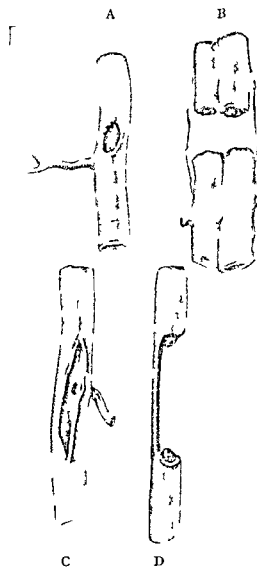


FIG. 2. Types of arterial wounds (Makins).

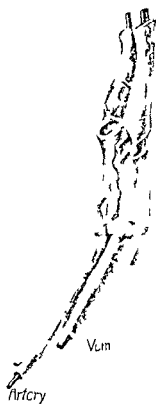
(a) Oblique wound of femoral artery close to a lateral branch.

(b) Complete division of both artery and vein. Note thrombosis of both vessels.

(c) Unusually long lateral wound of axillary artery. Note the branch arising immediately opposite the center of the wound.

(d) A three fifths division of the femoral artery. This form is frequent and amounts practically to a three fifths division of the femoral artery but spontaneous thrombosis is less likely to occur than when vessel is completely severed.

tions for aneurysms. By raising the extremity while the main artery is compressed and then lowering the limb again one can observe a marked hyperemia of the skin below the point of compression which lasts for several minutes. This gives one a fair test of the degree of collateral circulation. It is more reliable in arterial than in arteriovenous aneurysms because in the latter there is already existing venous hyperemia.



favor thrombosis of the collateral. Both of these according to Exner (7) favor gangrene.

A factor in the prognosis which must not be overlooked is the frequency with which cases of blood vessel injuries in the early stages complicated by infection are erroneously treated for the latter and the underlying vessel injury ignored until it is too late to save life. The patients often dying in the night by bleeding into their dressings during sleep.

The prognosis in aneurismal varices is much better than in varicose aneurisms (Fig 4). The former tend to remain stationary but with the latter spontaneous cure is practically unlikely because spontaneous coagulation of the sac contents cannot occur owing to the great activity of intra-aneurismal circulation. In the lower extremity where the evils of venous stasis combined with arterial ischaemia are much more severely felt than in the upper extremity interference is justified (Matas) before the evil effects of the varicose state have been fully established. Exner (27) from his experience in the Balkan wars believes that varicose aneurisms have a tendency to develop further and may rupture causing death. Those of the neck are more serious than in the femoral region.

# TREATMENT

This is to be considered under the following headings:

1. Circular or lateral suture at the time of injury.
2. Ligation of vessels immediately after injury.
3. Treatment of fully formed aneurisms.

1. *Circular or lateral suture (immediate).* The conditions under which the injuries have been received during the present war are most unfavorable to immediate suture or circular resection and suture of the torn vessels. This would be the ideal method of treatment but can rarely be employed because the facilities for operating such cases are not to be secured at the advanced dressing posts and by the time that the patient reaches the casualty clearing station the external hemorrhage has usually been spontaneously arrested. The majority of surgeons on both sides believe that patients with blood vessel injuries should be transported as little as possible until the period when an aneurism has been formed, i.e. after three to five weeks and then should be transferred to the base hospital for operation. I have been unable to find any reports of successful sutures performed immediately after the

## PROGNOSIS

This depends on the character of the injury, i.e. whether purely arterial or arteriovenous. If the patient survives the primary loss of blood, i.e. with excess of an external hemorrhage, the outlook becomes more and more favorable from week to week provided that secondary hemorrhage does not occur from mechanical displacement of the thrombotic clot or as the result of infection. The danger of gangrene from compression of the collateral circulation by the hematoma has already been referred to. Two factors make the establishment of collateral circulation difficult: (a) the pressure of a hematoma on the soft part and the collateral therein and (b) infection which increases the tension and

injury except the five successful cases of Jeger (*Berl klin Wchnschr* 1914 h 1907)

#### Ligations above and below injury (immediate)

There is still considerable difference of opinion in regard to the question of immediate ligation. Makins (60) believes that it is often followed by a lack of compensation on the part of the collateral circulation and also that such operations must be performed at a time when the patient is suffering from a loss of blood. This is especially to be considered in the case of ligation of the common carotid artery which is followed by cerebral softening to a degree quite unapproached by the after results of operations for aneurisms of lengthy duration. Makins believes that an arterial hæmatoma should be treated by rest and an expectant attitude. Ligation of the artery at an early date is objectionable if it can be avoided. Not only has the collateral circulation not acquired sufficient compensatory enlargement but the conditions for the proper fulfillment of this process may be seriously interfered with either by pressure from the blood clot around the wound in the vessel or still more seriously by concurrent wounds or laceration from tearing of some of the collateral branches themselves. As a result of these conditions under the best of circumstances the general nutrition of the limbs suffers permanent injury and actual gangrene is not infrequently the result. Beyond this if wounded collaterals lie in the wall of the cavity of the hæmatoma they may not bleed at the time of ligation of the main trunk, and hence are a not infrequent source of secondary hæmorrhage. The large majority of the hæmatomata eventually become false aneurisms. There should be no material difference in the early treatment of arteriovenous aneurisms.

Exner (27) from the experiences of the Balkan wars agrees with Makins (60) that it is best to wait until the aneurism stage because if the nutrition of the limb is good and there is no secondary bleeding a sterile case is best left alone. Early ligation does not allow the collateral circulation to form and also one cannot secure aseptic conditions for either ligation or suture at advanced stations. Exner employed suspension, mild compression and fixation and was able to successfully guide and operate twelve out of twenty-four cases into the aneurism stage; the rest either required amputation or died.

Sencert (82) advises far more radical early treatment than Makins or Exner and advises operating for diffuse hæmatoma at once in order to remove the danger of ischæmic or infectious gangrene even if the external wound is quite

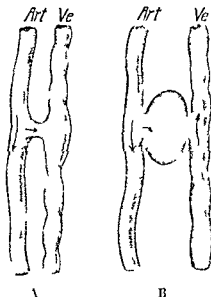


Fig. 4. Diagrams of arteriovenous aneurisms (Matas)  
(a) Direct communication of the artery (art) and vein (ve) aneurismal varix  
(b) Intermediary sac between the artery (art) and vein (ve) varicose aneurism

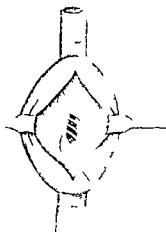
minute. He passes a heavy catgut ligature around the artery above the hæmatoma and depends upon traction of this ligature to stop the hæmorrhage while the hæmatoma is evacuated and the vascular lesion when uncovered is ligated.

Sencert has operated upon forty-two hæmatomata. Of those involving dangerous arteries five cases of hæmatoma of the axillary region gave one death and two cases of gangrene; nine cases of hæmatoma of the thigh gave two deaths and two cases of gangrene; five cases of hæmatoma of the popliteal region gave two cases of gangrene. Simultaneous ligation of the vein does not increase the danger of gangrene.

Cowell (21) agrees with Sencert in regard to simultaneous ligation of the main artery and vein of a limb and reports seven cases which show the beneficial results of such treatment, viz. of ligating the main vein where the corresponding artery is injured beyond repair; only one of the seven required amputation.

Makins (*Brit M J* February 17 1917) believes such simultaneous ligation is of benefit whether the vein is injured or not because (a) the vein offers a too ready exit for the diminished arterial supply, and (b) permits a smaller amount in the collateral circulation to be retained in the limb for a longer time.

Swan in discussing Cowell's paper (21) advocated expectant treatment for some weeks for blood vessel injury unless a rapid increase in the swelling or increasing pain from pressure upon



F 5 I t s a l t f t h h f m m c a  
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the nerve should complete its earlier  
 Swan statements seem most logical when he  
 says that if an arterial haemorrhage is opened it  
 may be very difficult to pick up the injured vessel  
 whereas a proximal ligation at the point of elec-  
 tion is to be avoided because the collateral cir-  
 culation has not had time to establish itself. The  
 haemorrhage may be from a main branch and not  
 from the main trunk and ligation of the latter  
 may be followed by gangrene.

The advice not to ligate early after an injury  
 is also endorsed by von Bonin (15) Hotz (43)  
 Matas and many others.

Hotz observed hemiplegia in five of six liga-  
 tions of the common carotid and gangrene in  
 four of six femoral axillary and popliteal liga-  
 tions.

Gebele (30) believes that immediate ligation is  
 indicated for smaller vessels where the interrup-  
 tion to the circulation is not endangered. The  
 only other surgeon who endorses the opinion of  
 Sencert for immediate ligation are Barbarin and  
 Lerat (5) and Donati (4). The former reports  
 twenty-three cases of whom twenty-two recover-  
 ed after ligation performed within three hours  
 after receipt of the injury, but of this number  
 three required amputation, one on account of the  
 bone and joint injuries, one on account of gan-  
 grene and one for gas bacillus infection. Donati  
 (24) also advises immediate operation if a vas-  
 cular lesion is diagnosed.

3. *Treatment of fully formed aneurisms (arterial  
 and arteriovenous)* As in the case of the question

of the immediate treatment of vascular injuries  
 there is still considerable difference of opinion as  
 to a uniform method of treating a fully developed  
 aneurism. This diversity is largely a matter of  
 individual experience and there will probably  
 always be a number of procedure all leading to  
 an equally good end result.

The method employed by practically every  
 surgeon in the treatment of traumatic aneurisms  
 during the Balkan and the present war are one of  
 the following:

1. Ligation above and below the sac
2. Intrascapular ligation of the orifice of com-  
 munication of the injured artery with the sac
3. Suture of the orifice of communication of  
 the injured artery with the sac (Matas endo-  
 aneurismorrhaphy)

The general tendency today is to disturb the  
 perianeurismal tissues as little as possible in  
 order to do all operative work within the sac. Prophy-  
 lactic haemostasis is usually necessary and is se-  
 cured through the application of an elastic con-  
 strictor. It is not necessary to freshen the edges  
 of the orifice in the sac before suturing or ligating  
 it. The method of intrascapular ligation was first  
 suggested by Annandale and modified by Kikuzi  
 during the Russo-Japanese war. It consists in  
 opening the sac, removing all clots, passing a  
 probe into the main artery, and with the aid of an  
 incision on each side of the orifice of communica-  
 tion to pass a catgut ligature around the orifice  
 in the sac.

The Matas operation aims to close the opening  
 in the sac after removal of the clots by a con-  
 tinuous catgut suture (Fig. 5).

In the following quotations from the current  
 literature of war aneurisms the two methods just  
 described will be referred to as the intrascapular  
 ligation method and the suture method respec-  
 tively. Both operations aim to disturb the col-  
 laterals as little as possible.

Makins (60) believes that an expectant attitude  
 should be the method of choice for some weeks.  
 If during this time steady decrease in size and  
 increase in the firmness and solidity take place  
 a much longer period should be allowed to elapse  
 in the hope that spontaneous consolidation of the  
 sac with persistence of the lumen of the artery  
 will supervene. Such an occurrence is not very  
 rare and the result is far superior to any obtain-  
 able by ligation or excision and probably in no  
 way inferior to that to be attained by successful  
 suture of the opening in the arterial wall. At the  
 later the date within reason at which the  
 operation is undertaken the better are the pros-  
 pects of finding the vessel sufficiently free in the

vascular cleft to allow a fair trial of the operation of suture

There is no material difference in the early treatment of arteriovenous aneurism it needs only to be borne in mind that spontaneous cure is not likely to occur. A local operation with ligature of both vessels above and below the communication or some form of suture is the proper treatment for the condition. Aneurismal varices never need early treatment and it is rare that an operation is required at a later date. The communication may close spontaneously even after a long interval. Operation is needed most often in the lower limb and should be of the same character as that recommended for arteriovenous aneurisms.

Exner's results (27) in the Balkan wars are of interest in connection with the expectant method of treatment. Of twenty four cases twelve were so treated until they reached the aneurism stage and all recovered. The remaining twelve either required amputation or died.

Soubbotitch (84) is a warm advocate of the Matas suture method. Schwieker (80) and Pearson (71) on the other hand both hold that suture is impossible in the majority of cases and that intrasaccular ligation is the most suitable method. (1) if the artery is small unimportant or difficult of access (2) if there is infection in the scar (3) if the extent of the injury is such that suturing or end to end anastomosis is impracticable or very difficult (4) if the adjacent walls of the artery are injured or diseased in which cases thrombosis or hæmorrhage will probably follow an attempt at suturing (5) if the patient's condition is such that any prolongation of operation or anaesthesia is undesirable.

The best time to operate is when the surface wounds are healed in two to four weeks but one must intervene earlier if there are signs of infection in the sac hæmorrhage rapid increase in the size of the aneurism severe persistent pain or signs of pressure on adjacent structures. Silk is used unless infection is present then Pearson employs catgut. Many cases of arteriovenous aneurism require no treatment. Aneurismal varix require (a) division of the connection between the artery and vein and then a suture of the opening in each (b) ligation of the artery above and below the anastomotic opening and ligation of the intervening branch. Varicose aneurism should be dealt with where possible by the intrasaccular route opening and clearing the sac and dealing with wounds in the vessels as required. Ligation of an important vein and artery at the same time should be avoided if one must be

sacrificed it should be the artery rather than the vein except in the case of the internal carotid artery and internal jugular vein.

Cowell (21) and Makins (60) have shown that such a simultaneous ligation of the main artery and vein of an extremity at least is not followed by gangrene.

Von Haberer (36) had seventy two operative cases five died sixty seven recovered but two required later amputation. The ideal method is suture circular rather than lateral because the latter narrows the lumen too much and there is greater danger of thrombosis. Suture is not indicated in very small arteries where ligation assures a collateral circulation. He thinks that there will always be cases in the large arteries where ligation must be done e.g. where large lateral defects or severe infection are present. If ligation is necessary it must be made within the sac or close to it taking the utmost care of the collaterals. The best time for operation is from two to three weeks after injury unless hæmorrhage or severe infection intervene. The strength of a vascular suture is very great and enables the soldier to return to heavy work much earlier than ligation. Paralysis of nerves is a frequent occurrence due to pressure of the aneurism.

Bier (9) in reporting one hundred and two war aneurisms at the Brussels meeting in 1916 also warmly recommended the suture method. This was done in seventy four cases. In arterial aneurisms lateral suture is easy the sac being opened clots removed the orifice freed and sutured. Operation in arteriovenous aneurisms is more difficult. In thirty six cases it was necessary to resect and make a circular suture. In all cases the arterial stumps can be united directly by suture because the opening in the artery is very small. The artery runs along the lateral aspect of the sac and can be easily dissected out even if cicatrices are thick. Even the veins can be freed. It is a cardinal rule that even if the arterial wall is thickened by cicatricial tissue it is not necessary to go beyond the opening in the artery because the adventitia is chiefly involved in the scar tissue. Circular suture is possible even in large arteries. The difficulty of aneurism operations is not in suture *per se* but in the anatomical dissections of the same. He has only tried circular suture once in veins in the other cases the openings in the veins were closed in a longitudinal manner. Where large veins ran through infected sacs they were doubly ligated to prevent pyæmia. He advises against suturing the artery if infection be present. Even apparently aseptic sacs may be infected this is the only

danger of suture One should never ligate if one can suture

Zahradnický (94) collected 425 cases of war aneurisms operated upon by forty five surgeons in the Balkan and present war Gangrene developed in 28 or 11.5 per cent of 4 ligation and necessitated amputation In 182 suture gangrene made amputation necessary in 1 or 3.7 per cent The mortality by the two methods was about the same viz 7.4 and 7.1 per cent Ligation was followed by gangrene three times as often as after suture of the vessels Suture would give even better results if an early operation were done before adhesion had formed and when there is not a great tendency to thrombosis

Von Eiselsberg in the discussion of Ober's paper (66) reported sixty five cases of which he had done lateral or circular suture in twenty Five of the sixty five died He believes suture the ideal method During the Balkan war the consensus of opinion was ligation and extirpation of drainage of the sac but in the present war suture is considered preferable

San (in Cowell's discussion 1) said he had been unable to suture most of his twenty three cases He thinks one should aim to reconstruct the lumen of the injured vessel by suture and when this is not feasible ligate above and below the injury empty and obliterate the sac by suture By opening the sac one is sure that no branch lead into it which would keep up the aneurism Operation is seldom needed in direct fistula between artery and vein but only when they communicate through a sac If immediate suture is impracticable then he ligates the artery and vein above and below the sac

Von Bonin (15) reported seventeen cases five arterial and twelve arteriovenous In the latter he performed one lateral and eleven circular sutures and in six of these veins were transplanted Eleven had primary union without sequelae He prefers circular suture with a vein transplant Secondary hemorrhage is to be most feared from the superior gluteal in pelvic wound

Hotz (43) ligatured in seven aneurisms and implanted segments of veins in five In one he ligated later on account of secondary hemorrhage all other healed uneventfully Better collateral circulation is obtained in regions where large masses of muscles have to be provided for than where chiefly ligaments and tendons are to be supplied this accounts for the high percentage of necrosis after ligation of the popliteal artery

We thus see that it is too early in the present war to arrive at any definite conclusion in regard to the choice of method in the treatment of war

aneurisms and only a large statistical report at some later period will serve to give one an idea of the relative value of the various procedures

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# ABSTRACTS OF CURRENT LITERATURE

## GENERAL SURGERY—SURGICAL TECHNIQUE

### ASEPTIC AND ANTISEPTIC SURGERY

**Morison R** Remarks on the Treatment of Infected Especially War Wounds *Brit M J* 1917 11 503

Morison says that he could not have believed two years ago that it would be possible to treat large infected wounds in such a manner that they would require no special drainage that they could be safely closed by suture at any period of their progress and that the dressings used for them could be left unchanged for from one to six weeks with a knowledge that healing was making steady progress. There can be no doubt now about any of these statements because each has been proved in hundreds of instances both by Morison and others.

These results have been achieved by thorough cleansing of the wound and surrounding parts and by the use of bipp paste. The paste is prepared as follows:

Iodoform 16 oz. bismuth subnitrate 8 oz. liquid paraffin 8 fl oz. or a sufficient quantity are used. The powders are mixed in a mortar and the paraffin incorporated. The quantity of paraffin must be sufficient to form a paste. The paste is then rubbed down on a slab with a spatula. Bismuth and paraffin are sterilized by dry heat at a temperature of 100 C for half an hour. Mixing is done in a sterile mortar. Paraffin is added at a temperature of 90 C. The paraffin used is a mixture of liquid paraffin 40 parts and of the solid melting at 45 C 10 parts.

Iodoform or bismuth poisoning can be prevented by removing all excess of paste. As both are opaque to the X ray unsatisfactory plates of fractures and of foreign bodies may result.

Some of the failures Morison has seen have been due to faulty surgery and the technique is seldom carried out entirely as suggested. He therefore calls attention to some of the following important features of technique.

It is desirable to see the bottom of all wounds but occasionally it may be unwise. Through and through wounds need not be excised. They may generally be cleansed by drawing a long strip of gauze through then pulling it to and fro. Next a strip of gauze soaked in alcohol is pulled through then one smeared with bipp. The fresher the wounds the better they react to the treatment. For suture silkworm gut or preferably silk rubbed with bipp is used. The greatest triumphs of the

method have been with large infected wounds bipped and then sutured. All of Morison's cases are so treated unless the wound is small or superficial. Occasionally there have been flares from omitting the treatment in cases of compound fractures of femurs apparently doing well.

In gunshot wounds of the knee joint of some duration that are not doing well or in those complicated by fracture Morison first applies extension straps below the knee, disinfected the skin, applies a tourniquet and opens the joint by a horseshoe incision dividing the patellar ligament. The whole joint is inspected and gently mopped out with alcohol. The tourniquet is then removed, bleeding vessels tied, the surfaces of the joint smeared with bipp and the joint closed. The limb is fixed in extension with a 15 pound weight. Dressing is left on for three weeks. Movement and massage are commenced as soon as the wound is healed.

C. A. HEDBLOW

**Short A. R., Arkle J. S. and King C.** A Report on Wound Treatment by Brilliant Green Paste *Brit M J* 1917 11 506

Experience has abundantly proven that to secure efficient sterilization of an infected wound antiseptic remedies must be applied not occasionally but continuously. Carrel's technique needs much attention which cannot always be given when the patient is traveling and which may be impossible during straffe times. Bipp is much less troublesome but may be poisonous either from bismuth or iodoform or both. It may also delay healing and it leaves a residue in the tissue which on subsequent X ray may be mistaken for a foreign body and lead to unnecessary operation.

Because of these objections to Carrel's solution and to bipp the authors have substituted a paste introduced by Hey consisting of brilliant green, boric acid, French chalk and liquid paraffin. They report results in a series of 69 cases and claim for it the following advantages:

1. It is non-poisonous. Boric acid poisoning should be watched for but has not occurred in this series.

2. It is painless.

3. In the great majority of cases it almost completely sterilizes the wound in three days so that secondary sutures can be performed even in large wounds complicated by bone injury. Small completely excised wounds can be primarily sutured.

4 The wound need be dressed but once in four days

5 No permanent residue is left to interfere with immediate healing

The wound must be thoroughly opened up and any foreign bodies removed before applying paste. If the patient has received too great a shock or if the wound is long exposing important structures Carrel's method is preferred. The usual procedure has been to stain the track with 100 of tincture of brilliant green though a Carrel tube to excise and paste it is creating ferment in the tissues or leaving it open. If smearing from the deep surface of the wound on the third or fourth day shows no bacillus present and not more than a few other organisms to the field the wound is completely closed by secondary suture. Often the wound shows no organism at all. The original patients are not effective after three days.

Of the 60 reported treated if are considered remarkably successful in the wounds were very treated in general recommended by bone or joint injury. Forty three are listed as successful in that they resulted but gave perfectly satisfactory results. Of the latterly unsuccessful cases a few hope from the beginning imputation being necessary in one and death supervening in three. One other died from the wound infection. In the case of the remaining five the wound is so deep that proper treatment by the method is not a hindrance.

C. A. H. BLUM

**Drummond H. and McNee J. W.** The Treatment of a Series of Recently Infected Wounds with Flavine. *Lancet* L. d. 97. (40)

It appears evident that flavine does not sterilize recent wound and that it is a good antiseptic freely in wounds treated with it. It appears to cause a very superficial necrosis in the formation of a fibrinous membrane if applied in the track of a wound.

In spite of the presence of bacteria the usual notable absence of inflammation and of infection and in cases observed there is no bad examples of gas gangrene although anaerobic organisms were present in large numbers in many wounds. Healing by granulation is very slow and the growth of granulations is indirectly checked by the presence of flavine.

In the present series of operations it is clear that flavine does not prevent some of the claims made for it as a bactericidal agent or regard its harmlessness to tissues. It appears to be useful when used as the first dressing to large open wounds applied in the form of gauze soaked in solution and it seems to limit the power for harm of the pathogenic bacteria and to prevent the inflammation of the tissues which is usually caused by bacterial invasion. Further observation in many more cases is necessary to establish its value in the treatment of recent wounds.

Almost all of the cases in which flavine was used were operated upon and the treatment with flavine commenced within twelve hours of the injury. In many instances only four or five hours had elapsed before the wounds were dealt with. All of the wound were therefore in the presupplicative stage.

The flavine was at first employed in a strength of 1 to 1000 which was used only for the first dressing to 300 dilutions were used for subsequent dressings. While the Carrel method of irrigation was used 1 to 1000 a 20 dilution.

In the test cases comprising over 20 wounds were treated. The vast majority of wounds were caused by fragments of shell or bombs. The wound may be divided into three classes: (1) simple wound, (2) compound fracture, (3) miscellaneous wound of the limb in which the head and joints.

Long incisions with free excision of damaged muscle and fascia must be regarded as a cardinal part of all operations in the treatment of wounds. After this preliminary surgical treatment the wound is treated with flavine which is dealt with in the following manner.

1. Primary suture. This method was employed in 30 cases all being wounds of soft parts alone. In the majority of these the damaged muscle removed at operation and examined bacteriologically as shown to be infected. Fragments of dirt and cloth were frequently removed from the track of the wound.

2. Drainage by tube or gauze strip followed by secondary suture employed in 10 cases.

3. The Carrel method of intermittent irrigation. The wounds were irrigated every 4 to 6 hours. This method was chiefly employed in compound fractures and deep extent of multiple injuries.

4. Gauze packing open wound. It has certain types of compound fracture and amputation of stumps which are completely irreparable. The gauze packing is applied in the wound bed in situ for several days without changing the dressing.

Wounds treated by any one of the methods and damaged tissues followed by primary suture gave excellent results. In cases of 30 wounds only two broke down.

The cases treated by drainage with a secondary suture gave good results in all the cases in which it was applied. In several instances secondary suture was done for the wound was bacteriologically sterile but on untended result followed. Healing in cases of secondary suture was slower than in primary suture.

Open wounds treated with flavine either by the Carrel method or soaked in solution are carefully followed. The typical progress is a wound may be outlined. On removal of the first dressing on the third day the wound is completely healed. It stands with flavine has undergone no alteration in appearance and resembles an injury only a few hours old. All signs of inflammation are wanting and there is no pain, redness, swelling or duration in the tissues. The secretion is minimal in amount.

and suppuration is absent. The absence of suppuration even where films show abundant organisms is noteworthy. When dressed again at the end of a week the skin edges are clean cut, no epithelial growth having taken place from the edges. The floor of the wound has become covered by a closely adherent membrane forming over whatever tissue is exposed in the wound. The wound from this time on if flavine is continued remains in a dried up state showing neither signs of inflammation nor repair.

Experience has shown that a wound heals with much greater rapidity if the use of flavine be stopped after three or four days in the case of small wounds and after about a week in severe wounds or compound fractures. If at this period eschar is substituted the yellow membrane comes away piecemeal within a day or two and granulations appear more luxuriantly. In a few days growth of epithelium is well established at the edges of the wound and abundant purulent discharge appears with the occurrence of rapid healing.

Regarding the treatment of wounds of the chest and abdomen it is of interest that considerable quantities of flavine can be left in the abdominal and thoracic cavities without inducing the least toxic effect.

Portions of tissue have been removed from the edges or floor of seven open wounds under treatment with flavine and examined histologically. These examinations were made two, two and one half, three, eight, eight and eleven days after treatment had begun. Up to three days the skin edges were sharply cut and unaltered histologically. The floor of the wounds showed a thin layer of fibrin and polymorphonuclear leucocytes covering a narrow zone of neurosed muscle fibres. Between the dead fibers polymorphonuclear leucocytes were fairly abundant and in one case many large gram positive bacilli of the usual anaerobic type were present.

The material taken from a wound on the fifth day showed a thicker covering of fibrin and leucocytes with a few dead muscle fibers imbedded in it. No evidence of granulation tissue production was observed and the skin at the edge showed no epithelial proliferation. The wounds in two cases on the eighth day were in a dried up condition and to the naked eye showed no sign of inflammation or repair. Microscopically there was a minimal amount of epithelial proliferation from the skin edge. The floor of the wounds was covered by the membrane of fibrin and leucocytes. Below the membrane in one wound granulation tissue production was evident throughout. The tissue taken on the eleventh day showed no new features: granulation tissue production being well established below the membrane but there was very little epithelial growth from the skin edges.

Bacteriologically a small number of wounds remained sterile from the outset but in the majority of the wounds no sterilization was brought about by the application of flavine. Infection by anaerobic

bacilli was very common in the early stages but tended to pass off at the end of about a week except in the cases of compound fracture. After a few days the invasion of the wounds by streptococci was almost the rule accompanying or replacing the anaerobic infection. After a week or longer infection with a variety of other organisms was commonly met with especially staphylococcus and bacillus pyocyaneus. The conclusion was reached that the type of infection in wounds treated with flavine in no way differed from that met with in cases where other treatment had been employed.

Test tube experiments with flavine and various organisms were made with the following results.

With staphylococcus aureus no living organisms were found in a tube containing 1 to 10 000 flavine.

With streptococcus pyogenes no living organisms were found in a tube containing 1 to 100 000 flavine.

With streptococcus faecalis no living organisms were found in a tube containing 1 to 50 000 flavine.

With bacillus perfringens no living organisms were found in a tube containing 1 to 100 000 flavine.

With coliform bacillus a living organism was recovered from a tube containing 1 to 100 flavine.

A second series of tests in which the dilutions of flavine were made in fresh human serum were carried out with coliform bacillus with the result that no living organisms were recovered in subculture from the dilution of 1 to 8 000 in serum.

A further test to show whether or not the enhancing power of serum on flavine was lasting showed that in a dilution of 1 in 5 000 flavine no growth was obtained at the end of 90 hours the mixture of serum and flavine retaining its antiseptic power for at least that length of time.

The author's conclusions are

1. Flavine has the following advantages in the treatment of recent wounds: (a) there is an absence of all toxicity; (b) it prevents suppuration and spreading sepsis; (c) the primary dressing need not be changed for two or three days; (d) the wounds are not inflamed or painful and the surrounding skin is never irritated.

2. Excision of damaged tissue and mechanical cleaning of the wounds are necessary preliminaries to the use of flavine.

3. Flavine cannot be classed as a success in the treatment of the later stages of war wounds. The wounds tend to assume a stagnant condition during which time the processes of repair are in abeyance.

4. In the majority of cases war wounds are not rendered bacteriologically sterile by the prolonged use of flavine.

5. Test tube experiments carried out with organisms isolated from actual wounds bear out the strong antiseptic properties of flavine and their enhancement in the presence of serum.

V. C. HUNT

Rowe R. M. A Note on the Carrel Dakin Dau-  
fresne Treatment. *Brit. M. J.* 1917, 11, 387.

The author reports the results of six months experience of the Carrel Dakin Daufresne treatment.

in infected wounds in a general hospital of the British expeditionary forces carried out strictly in accordance with the system employed by Carrel at his hospital. They report:

- 1 Absence of secondary hæmorrhage
- 2 Absence of amputations except in infected and badly comminuted knee joints and badly comminuted ankle joints
- 3 One case of septæmia
- 4 A mortality of one: this was a very dirty comminuted knee joint

The cases have required a longer period of treatment than the rule at Carrel's hospital. This is attributed to the later stage at which British cases come under treatment. In 4 days appears to be the shortest period of disinfection.

C. A. H. BL. X.

**Fleming J. S.** An Albuminate of Copper as an Intracutaneous Antiseptic. *S. H. M. J.* 97, 845.

The compound is made up by complete precipitation of copper sulphate in human blood serum. This precipitate is thoroughly washed and spread thinly and evenly upon ligatures and plates and evaporated to dryness after which it is ground to a powder in a sterile mortar. One gram of the powder is accurately weighed out and added to 100 ccm of physiological salt solution and sufficient 15 per cent caustic soda to make a strongly alkaline approximately 5 to 10 drops. When the solution is complete a sufficient amount of 5 per cent solution of hydrochloric acid is added drop by drop to render the reaction of the solution faintly alkaline. It is filtered through a filtration warmed and put into a sterile syringe.

The action on typhoid bacilli was determined experimentally showing that 100 per cent solution inhibits the growth within twenty minutes and prevents growth of the organisms within an hour.

A solution was then made up with gelatin, p serum, intracardiac injection of 0.5 ccm of 1 per cent solution was made in the ear and leg of a four-day-old mouse with only a slight reaction.

The human experiment was carried out on cases of advanced tuberculosis. No results of note were derived. It appears to have no influence upon typhoid fever.

(C. R. P. S. E. N. K. E.)

**Fowler W. F.** An Evaluation of Antiseptics and Antisepsis. *S. G. Phil.* 97, 1, 583.

The author gives an extensive account of the work of many investigators in a practical and antiseptic surgery.

Under normal conditions the steam sterilizer is dependable. The method of preparation of catgut is a safe one. Preservation of the normal resistive and recuperative powers of the tissues is an important measure. Gentleness must be cultivated. The author does not believe that the gloved hand should

be kept out of the incision as he claims that this is just as sterile and less traumatizing than instruments. The skin edges should be walled off with towels.

Analysis of the several investigations herein quoted is extremely instructive. For example:

Whitning and Slocum state that alcohol 40 to 95 per cent will kill the bacillus typhosus in practically the same time as various coal tar derivatives in alcoholic solutions of from 60 to 65 per cent. Nevertheless they consider the phenols to be more efficient germicides.

Lost and Noll learned that mercuric chloride has very little germicidal action in aqueous solutions.

Whitning believes that alcoholic solutions of mercuric chloride are much more efficient especially on dry skin.

Crosskey emphasizes the importance of using alcoholic solutions of iodine on dry skin.

Of alcohol Whitning says: "As a solvent or vehicle for the various antiseptics used on the skin it is vastly superior to water. The alcoholic solutions penetrate more deeply and having greater germicidal power than the aqueous."

Kelly and Lackner conclude that alcohol is practically actives as a germicide.

Lost and Noll rank alcohol in solutions of more than 50 per cent as one of the most active germicides. Some investigators have underestimated the germicidal power of alcohol.

Both tests of the skin having the iodine on it gave negative cultures fifteen days after operation. Kelly believes that the action of iodine is merely inhibitory and that if the patient is in a position to be killed by germs during operation.

Kelly and Whitting both obtained sterile cultures before and after the action of the antiseptic but large percentage of germs were used after neutralization.

Lost and Noll also said that tests of doubtful value in this connection of the antiseptics stopped forth.

Clinically iodine solutions do remain on the skin.

It penetrates into the dermis layer and therefore remains and determines how long its activity may continue. The organisms of operation class iodine as an efficient germicide. Granting that its action may be delayed or that it is perfect as per the skin it is unobtainable or assuming with Robb that iodine is really inhibits germ life nevertheless the tissues including the peritoneum can defend themselves against limited number of bacteria.

Morrison remarks the disadvantages of rubbing gloves. The fact that hand sterilization is so difficult and gloved operation so easy would seem to outweigh the objections to the use of the latter.

Seligman and Gould are convinced that laboratory tests which do not simulate clinical conditions are of little value. That alcohol in solutions of 5 per cent or more is strongly germicidal but less so than iodine, that a solution of alcohol and iodine together is more germicidal than either alone, that alcohol carbolic acid and iodine can penetrate

animal membranes and that penetration is facilitated by the presence of oil in the skin

Lambert has shown that iodine alone of various tested antiseptic will kill bacteria rather than tissue cells. Although the phenols have decided germicidal power and possess the ability of penetrating animal membranes they are unfortunately tissue destroyers. Clinically alcohol is non irritant.

Brewer demonstrated that infection may be due to minor lapses in technique to germ bearing suture material to contaminated novocaine solution or to failure of the steam sterilizer. It is not safe to assume that any link in the chain of technique is unbreakable.

The conclusions are as follows

1. Abundant clinical evidence of the efficacy of iodine in skin sterilization has been corroborated by laboratory findings
2. The germicidal action of mercuric chloride is too slow to be of value in sterilization of the skin
3. Eternal vigilance is the price of asepsis

C A BOWERS

### ANÆSTHETICS

Graham E A. Toxic Factors of Some of the Common Anæsthetic Substances. *J Am M Ass* 1917 lxx 1666

A consideration of the possible toxic factors of the anæsthetic agents is important in serving to prepare the way for the avoidance of disasters and in insuring a greater margin of safety to the patient who undergoes an operation.

Narcosis is always accompanied by a condition of diminished oxidation. It therefore always indicates a condition of more or less severe asphyxia of the tissues. Loeb has shown that an asphyxiated tissue always becomes acid. It is not surprising therefore that surgical anæsthesia induces many of the signs of an acid intoxication. As is well known also an existing acidosis is aggravated by a surgical anæsthesia.

The power of the common anæsthetics to induce severe toxic effects varies. Ether causes these changes much less readily than does chloroform and nitrous oxide has only a slight tendency to induce them. The increased toxicity of chloroform over ether and nitrous oxide is probably to be found in the fact that during the breakdown of chloroform in the body hydrochloric acid is formed. Therefore chloroform in addition to giving rise to an acidosis as a result of the narcosis asphyxia actually yields a strong inorganic acid as well. The changes in the tissues characteristic of late chloroform poisoning such as œdema hemorrhages fatty changes and central necrosis of the liver are probably really the effects of hydrochloric acid.

The common anæsthetic substances are capable of dissociating in a manner which yields bivalent or unsaturated carbon. The toxicity of the cyanides and carbon monoxide probably depends largely on

their property of dissociating in a similar manner. It is therefore probable that some of the effects of the anæsthetic substances are due to their unsaturated residues.

ALBERT EHRENFRIED

Henderson E L. Nitrous Oxide Oxygen Anæsthesia in General Surgery. *Am J Srg* 1917 lxxi 91

The experiences of the author lead him to assert that there are few contra indications to the employment of nitrous oxide oxygen in general surgery regardless of the length of its administration the previous mental and physical status of the patient is restored within a few minutes after withdrawal. Furthermore when administered by an expert nitrous oxide-oxygen he believes has practically no limitation as a general anæsthetic. It is also the most desirable and the safest of general anæsthetics.

In the administration of gas it is of the utmost importance to guard against cyanosis and respiratory difficulty by careful regulation of the administration of the gas and oxygen especially during prolonged administration. This anæsthetic is contra indicated in children under five years of age because of the small size of the respiratory passages and increased liability to asphyxial symptoms for the same reasons it should not be employed in enlarged tonsils cellulitis tumor of the neck or in other respiratory obstructions. It is also contra indicated in serious cardiac lesions with broken compensation aneurysm and in emphysema and marked arterial sclerosis. In the aged intolerance in asphyxia and circulatory stress is likewise a feature to be remembered especially if chronic bronchitis is present. Nitrous oxide oxygen is not contra indicated by old age itself.

Preliminary to the administration of nitrous oxide oxygen in general surgery Henderson has been accustomed to give the patient one hypodermic of atropin sulphate 1/100 to 1/150 gr but where there is no contra indication he gives morphine 1/8 to 1/4 gr. For the induction of surgical anæsthesia he now prefers the so called safety apparatus manufactured in Chicago.

E C ROBITSHEK

Large S H. The Use of Nitrous Oxide and Oxygen Analgesia in Operations on the Ear Nose and Throat. *Cleveland M J* 1917 lvi 75

Large describes his technique based upon an experience of over a year.

Adrenalin and cocaine are used locally or by injection. Ten minutes should elapse before beginning the operation which should be performed in the reclining position. The patient is carried into complete anæsthesia by the nitrous oxide and oxygen using a face mask. The mask is then removed and a mouthpiece inserted into the side of the mouth. Should the patient be very nervous he prefers to use a soft rubber catheter through one side of the nose keeping the mouth closed by rubber dam. When using the mouthpiece pledgets of cotton are placed in either side of the nose well

back to economize the gas and to catch the blood before it drops into the nasopharynx. In using the mouthpiece very little oxygen is needed as the patient naturally gets sufficient air.

The machine is equipped with a three way valve so as to obviate the necessity of changing attachments. When operating within the mouth it is necessary to use a nasal mask.

ALBERT EHRICH

Burger T O Practice of Local Anesthesia 4m  
J S G 07 83

In all of his cases the author uses local anesthetic and gives morphine on the first four of a group and morphine on the fifth of a group one hour before starting to operate. In the use of local anesthetic is a knowledge of anatomy and of the nerve supply and of the structures which require better infiltration and not at all.

The patient should be in a perfectly comfortable position on the table. The position of the syringe is kept moving and the solution is made to slowly proceed the needle point sharp cutting instrument are absolutely necessary.

Burger believes that no cocaine is the ideal non-toxic drug for this purpose. He uses a solution of one half percent cocaine plus morphine of a fresh intravenous solution of adrenaline to the cocaine.

The author has used local anesthetic to the entire satisfaction of himself and his patients in practically all of his hernia work and also has had most satisfactory results in hemorrhoid work. He has found that local anesthesia can be used effectively in vaginal plastic surgery accepting perineorhaphy.

In summarizing the author says that local anesthesia is adaptable to most surgery but lends itself best to certain operations and to certain individuals and it should be used with the points well considered. Proper instruments perfect knowledge of anatomy preliminary hypnotic gentleness self confidence and the confidence of the patient are all essential factors.

F C ROBERTS

## SURGICAL INSTRUMENTS AND APPARATUS

Monprofit Modern Instruments for Limb Amputation (Illustrations) A Handbook of the Principles of Amputation 6

In 1908 Monprofit exhibited before the Société de Chirurgie of Paris an entirely metallic hemostatic binder which was destined to replace the Esmarch hemostatic band. This latter apparatus which other men had greatly utilized had the disadvantages that it was fragile and that it was difficult to sterilize.

The metallic appliance of Monprofit is illustrated and described. It is easily applied and sterilized with the greatest facility. It is in every way superior to the rubber band. This appliance has been used both in the Balkan war and the present war by Monprofit and other surgeons with great success.

Monprofit has also for the past fifteen years been occupied with designing metallic retractors for use in amputations. His first metallic retractors were described in 1904 and these as well as his latest models for different limbs and positions are described.

A historical sketch of the evolution of amputation retractors is given by the author including Gooch (1730) who replaced the ancient compress by a leather band which was improved by Bromfield (1773). Bell's metallic retractors are an important innovation in surgical instrumentation were in use in 1796. Percy's improvement on Bell's instrument was probably constituted about 1799 as it is described in literature immediately after that.

For reasons which Monprofit states metallic amputation retractors fell into disuse until their importance was again brought forward by him in 1904. His present retractors are only an adaptation of the neglected instrument of Percy.

W A BRENNAN

## SURGERY OF THE HEAD AND NECK

### HEAD

Anton and Schmidt Suboccipital Puncture  
M H M D W L H 07 N 6

In January 1917 the authors reported suboccipital puncture as an operation for diminishing cephalic compression. The puncture of the corpus callosum showed a favorable indication in endocranial compression and the cerebral circulation and obviated coexistent cerebral lesions. Some cases of epilepsy also were treated in this way.

Recently the indications were very much widened by Pavlov who adopted the operation at the rear front 50 times with good results in cranial co-

stic traumatic cephalic tumor formations and intracranial cysts.

Discussing certain aspects of the procedure the authors think it is logical to open the atlanto occipital membrane in order to obtain a permanent reduction of pressure and to keep it open. Good reasons based on physiology indicate the identity of the cerebral and spinal fluid. Druff demonstrated that in a mouse after the ablation of the membrane cerebrospinal fluid pressure could not kill the animal as long as the membrane remained patent.

The author describes the technique of suboccipital puncture in detail. It is practiced in the nuchal

region under local anæsthesia. An incision about 8 cm long is made commencing about two finger widths under the external occipital protuberance and terminating below the spiny apophysis of the seventh cervical vertebra. The atlanto occipital membrane when met is slightly elastic but when the pressure is augmented it is convex and after a slight puncture the fluid issues in a jet. By inserting a blunt sound the cistern at the base of the cerebellum is reached and eventually the fourth ventricle. The opening made should be kept open leaving a fistula of cerebrospinal fluid in the intramuscular or subcutaneous tissues. The rest can be sutured.

The suboccipital puncture has been applied in some desperate cases of severe cerebral tumor with improvement of the symptoms. The author thinks that the operation may justly be employed in slightly encephalic morbid conditions such as hydrocephalus serous meningitis epilepsy with status epilepticus or even in severe hemiparesis with Quincke's œdema. As regards its influence in the psychoses preliminary studies are not yet complete.

W A BRENNAN

**Duval P.** The Treatment of War Wounds of the Soft Parts (Note sur le traitement des plaies de guerre des parties molles) *Bull et mêm Soc de chir de Par* 1917 xliii 39

Duval in the army service to which he was attached created a special organization to deal with wounds of the soft parts. These are the most numerous in war and when favorably treated heal quickly and well but under unfavorable conditions may result disastrously. It is an accepted principle that injuries of soft parts exposed to contamination should be operated upon at once excised and cleared of foreign substances. Immediate suture is then the procedure of choice but this under the conditions is not always realizable and is done only exception ally.

Duval has created at as advanced points as permissible to the firing line some surgical units equipped for operations and reserved for special treatment of soft part wounds. About one third of the cases were destined for primary suture. The other two thirds had their injuries surgically cleaned and were immediately evacuated to the territorial hospitals. Of those primarily sutured only about 4 per cent were failures. Of the two thirds having an early complete surgical cleansing operation 81 per cent were sutured on an average about eleven days after operation. In these cases there were no deaths and no cases of tetanus. Eighty four per cent of the evacuated were sutured and completely cured five weeks after injury.

The author thinks that it is hardly a matter of regret that primary suture although the procedure of choice cannot under the conditions of an offensive be practiced as the secondary suture after surgical disinfection gives almost equally good results. After this first operation and evacuation the wound

was merely kept covered with a simple aseptic dressing. The Currel method of disinfection was only necessary in about one tenth of these cases.

Duval thinks that the progressive systematic sterilization of surgical wounds is a method which facts demonstrate to be useless in about two thirds of the cases and that delayed primary suture takes precedence over secondary suture as it notably reduces the time of treatment and gives better recovery.

W A BRENNAN

**Sicard J A.** Treatment of True Facial Neuralgia by Local Injections of Alcohol (Traitement de la névralgie faciale essentielle par l'alcoolisation locale) *Presse méd* Par 1917 p 60

In trigeminal neuralgia Sicard states the destruction of the nerve branches by chemical solutions especially alcohol has effectively replaced physiotherapeutic and surgical treatment. The only surgical treatment which is definitely curative is the removal of the gasserian ganglion is accompanied by many dangers. Sicard has experimented with several neurolytic agents but has abandoned all in favor of alcohol. This is used in strength of 70 to 95 per cent according to the age of the patient and the condition of the tissues.

There are three stages of neurolysis: the superficial the medium and the deep. The superficial stage includes the ophthalmic nerve at its bony supra orbital emergence, the medium stage includes Spix's spine and the posterior palatine canal, the deep stage includes the sphenoidal orifice, the superior and the inferior maxillary nerves.

In the technique it is necessary to know precisely how to place the needle in the bony facial structure and for this the operator must become expert by practicing injections on the cadaver before injecting the living patient. Such injections must be made under local anæsthesia.

The dosage of alcohol to be injected in each canal or orifice ought not exceed 1.5 ccm. For a neuralgia involving all three branches of the trigeminal nerve at the first treatment the superficial regions of the ophthalmic suborbital and inferior dental may be injected and in a second treatment made two or four days later the deeper regions can be injected.

In making the neurolytic injections pain is never completely avoided. Care must be taken to avoid injecting a vessel, ocular paralysis may occur from involvement of the external ocular motor nerve. Facial paralysis or facial erysipelas may occur but this is extremely rare.

In order to insure success it is necessary that the neuralgia should be true facial neuralgia. Secondary facial neuralgia of exo or endocranial origin is not relieved by alcohol injections. It is also necessary that the nerve branches responsible should be immediately reached by the injection and the immediate anæsthesia of the cutaneous or mucous territory dependent on the injected nerve is the proof that the injection has succeeded. Success is always assured if the alcohol has been able chemically



ly to section the responsible branches or nerve trunks by determining a consecutive and lasting anæsthesia of the corresponding skin and mucosa

W A B \A

**Parker W R** Total Loss of Vision in One Eye and Partial Loss in the Other Completely Relieved by a Sellar Decompression Operation  
*A J Ophth* 97 1 58

The case reported is that of a man of thirty three with complete loss of vision in the right eye during the course of a year and partial loss in the left with pain over the right eye radiating to the right mastoid region and occiput

Both eye and general examination showed nothing distinct except that the rays plates disclosed an enlargement of the sella with absorption of the posterior clinoid processes especially in the middle portion so that the tops looked like isolated pieces of bone. Diagnosis of the tumor in the region of the pituitary body was made and a sellar decompression operation was done with removal of a portion of the pituitary struma

Fifteen days later vision began to return and on the eleventh day complete vision in both eyes was normal  
S S Ho

**Kearney J A** The Value of Eyeground Observation in Recent Cases of Fracture of the Skull  
*J A M I* 97 1 300

While X-ray examination of fractured skull is important it reveals very little concerning high intracranial pressure relief of which is imperative

Recent cases in the first 24 hours usually show a general oedema blurring equally all details in the fundus of the eye this blurring is either slight or obscures all usual landmarks the venous tufts if visible being dilated out of proportion to the size of the arteries When uncomplicated by increased intracranial pressure this retinal oedema gradually subsides

Later the oedema may increase or in addition to the previous oedema there may be an added obscuration of the nasal half of the disk and its margins these changes are early indications of increase in intracranial pressure confirmation of which can be had by measuring the pressure of the cerebrospinal fluid at lumbar puncture by a spinal manometer All such observations have shown increase in pressure Occasionally the oedema may occupy the entire disk a papillary oedema

Conclusions as to treatment based upon the observation of these cases are as follows

All fractured skull cases should be placed in bed with an ice helmet to the head absolute quiet maintained free catharsis is established and the patient given a liquid diet

If intracranial pressure is increased slightly and up to double the normal repeated lumbar puncture is indicated

If the intracranial pressure is doubled or more and the pulse rate is somewhat lowered simple cranial decompression is indicated for relief of the pressure and for drainage before collapse of the medulla

Examination of the fundus 24 hours after decompression of spinal puncture generally reveals a reduction in the oedema  
H J VAN DUSEN

**Phister D B** Brain Cyst Following Skull Fracture  
*Surg Clin* 97 97

The patient aged 2 was admitted to the hospital because of attacks of epilepsy which had occurred during the past four months. It was a normal healthy child until four and a half years previous when he was struck on the left side of the head by a ball and back of the ear by a pole from a horse. The blow rendered him unconscious and produced a compound fracture of the skull from which some brain tissue escaped at the time. Consciousness was gradually regained after forty eight hours and the wound healed promptly with little infection. No paralytic disturbances in speech or other focal symptoms were noticed during his convalescence. During the past year he had had repeated attacks of headache usually in the occipital region lasting for a few hours but not accompanied by nausea or vomiting

He received questions intelligently and showed no definite speech or motion. There was a scar and a moderate indentation above the one and on the left inch long over the left parieto-occipital region extending downward almost to the left mastoid. It was centred above and 1 cm wide below. Palpation revealed the absence of bone over a portion of the indentation and pulsation could be seen and felt

The X-ray picture of the head showed an elliptical defect of the skull bone one and one half inches long extending upward and slightly backward from the top of the left mastoid. There were no remnants of bone within the brain substance

A diagnosis of traumatic epilepsy was made but the exact nature of the changes within the cranial cavity was not predicted

At operation two days after admission a horse shoe shaped flap with its base on the level of the upper limits of the mastoid was turned down from the parieto-occipital region on the anterior margin of the bone flap bordering on the linear defect of the skull. A large cyst could be seen and felt in the anterior portion of the exposed area and in the region of the defect in the skull the dura mater was irregularly thickened and scarred. The cyst was opened in the sagittal and about 100 cc of a clear colorless fluid escaped. The piece as packed with a 2 inch plain gauze strip. It was moved gradually beginning on the third and ending on the ninth day after operation when a gauze strip was inserted. There was a profuse discharge of a slightly blood-stained serous fluid during the first ten days after which it gradually decreased and ceased soon

after the removal of the gauze drain on the twelfth day

The patient had a very interesting postoperative course. The temperature fluctuated between normal and 104 F. During the first four days after operation he was comfortable, rational and had no headaches. On the fifth day the right hand became numb and he complained of dizziness but there were no twitchings or loss of consciousness. During the next two weeks his mental condition remained fairly good. Then he gradually became dull and irritable, crying out at frequent intervals. The right side of the body began to show signs of paresis and this condition increased until it was very marked, especially in the arm and leg. The mental confusion gradually increased. There was well marked sensory aphasia.

The patient left the hospital unimproved. Stupor became more marked and he died six weeks after operation. No autopsy was obtained but death was probably due either to infection of the brain tissue without any definite signs in the external wound or to the marked cerebral injury caused by the shifting of the brain substance in the filling out of the cyst cavity.

EDWARD L. CORNELL

#### Brown R. C. The Repair of Skull Defects. *Med J A Stral* 1917 41 409

The symptoms occurring in the author's experience as results of defects in the skull following injury are first attacks of dizziness especially on exertion, second fear of pressure or a blow on the weak part, third headaches and head pains, fourth appearance of dullness and apathy, fifth weakness of memory, sixth objection to the deformity caused by the pulsating deep depression in the scalp.

An ideal operation should aim at restoration of the brain with a filling of the gap by bone, attempting not only to secure a corrective effect but also to restore the patient's confidence in the permanent reliability of this part of the skull and to make the external surface of the original shape, strength and rigidity. Among the procedures advocated thus far the insertion of foreign substitutes such as silver plates, celluloid etc. and fascia lata and autogenous cartilage grafts have been suggested. Autoplastic bone grafts in the author's opinion must be used to give the best and most permanent result. The best holds from which to remove grafts are the tibia and the ribs. He believes that the ribs are better adapted to this because they are easily approachable and either naturally conform to the outlines of the skull or can readily be made to do so. The required instruments are of the simplest and the graft after several months appears to be a part of the skull itself. In the earlier operations the entire thickness of the rib was used but he now uses only the outer half. He prefers rectal anæsthesia.

The skull edge is freed from the cicatrix and underlying dura with the engine and curved elevator and the bone edges are refreshed for a distance of one half

an inch all around. A free incision is made over the sixth or seventh rib, muscle attachments separated and periosteum left. The rib is then split on the flat to the required extent, removing the outer table with periosteum and cancellous tissue intact. This rib splitting is done with a thin sharp carpenter's chisel three fourths of an inch wide with the edge ground to a semicircular shape. The graft can be bent to any shape and if more than one graft is used the adjacent edges are freshened with scissors. The ends of the graft are placed beneath the pericranium which is sutured to the graft. Then a couple of catgut sutures are placed transversely across the graft. The scalp is replaced allowing free drainage for twenty-four hours on account of the risk of a hæmatoma.

The author states that one cannot appreciate the advantages of the rib in skull work until one has used the tibia as a field of graft supply. Vertigo is the symptom most constantly relieved. In all of his later cases in which he used the split rib the outline has been almost perfect in marked contrast to the flat appearance of the tibia graft. He has performed this operation in 13 or 14 cases with great success.

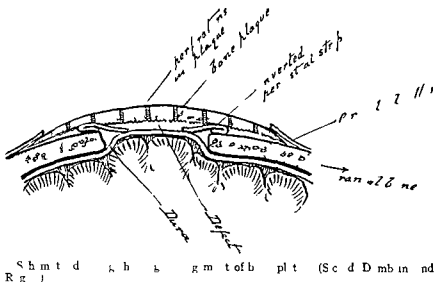
D. N. EISENDRATH

#### Sicard I., Dambrin C. and Roger H. Osteogenic Action of Sterilized Bone Plate in Cranial Prosthetics. (*Action ostéogénique de la plaque osseuse stérilisée dans les plastiques crâniennes*). *Presse méd.* Par 1917 p 577

In 1916 the authors proposed a new method of cranial plasticity by the use of sterilized cranial bone plates for the repair of cranial defects. In some of their earlier operations a few failures resulted due rather to fault of technique than to the method. The authors have now greatly improved the technique and in 4 operations have had no failures.

The cranial defect to be repaired is regularized if it is of a very irregular shape. The bone plate to be used is taken from the homologous cranial region of an autopsy case. It is boiled for a few hours in water to which a handful of sodium carbonate is added. It is trimmed so that it is in diameter about 0.5 cm. larger than the hole to be covered. It is thinned at the edges and scraped away until the spongy diploe is freely apparent. When this condition is reached the plate has a thickness of from 1 to 2 mm. The entire surface is pierced with small holes about 0.5 cm. distant from each other. It is well even to prepare a few such plates so that the surgeon may select that one which is best adapted to the breach in the skull.

The plate is next thoroughly sterilized both chemically and by heat. It is first placed in ether for forty-eight hours, then in a mixture of equal parts of ether, alcohol and pure formal for twenty-four hours, then it is washed in boiling water and submitted to vapor sterilization in an autoclave at 110° for half an hour. Finally the plate is tested for growth in bouillon and if the liquid remains sterile the plate is surgically ready.



The edges of the cranial brach arch are then fixed. The periosteum is sutured down to the bone at a distance of about 1 mm from the periphery of the defect and the strips are sutured at each side of this incision so that there are two periosteal strips. The first of these strips which is sutured to the edge of the brach arch is turned back on itself and pressed down on the dura mater so that it under the surface becomes the upper surface of the upper surface of the bone plate. The plate is then directly sutured under the edge of the outer periosteal strip like a watertight glass in its rim and so that the periosteal strip forms a collar all around the plate.

By study of the case of the early cases in which a secondary intervention is necessary, the authors have been able to observe the osteogenic process which occurs at the hole. It is effective. It is found that a fibroplastic membrane forms which is adherent to the dura mater and thickly studded with little points having the consistency of bone. It is easily seen that the *stratum proliferans* has been sutured over and pressure does not dislodge the point of origin of osteogenic activity.

Examination of the end of an extra dural bone plate shows that it is deeply perforated in certain places. The periosteal strips absorb the dead bone tissue which has been sutured to build up new osseous tissue and tend to fill the defect from the periphery toward the center. The process is partially completed in the hole drilled in the plate which becomes filled with the new material and acts as a rest. Without the presence of the dead bone of the plate, the periosteum probably could be deprived of any osteogenic function. The lime salts placed in contact with the periosteum sensitize it and nourish its property of creating bone tissue.

In order that the osteogenic function may reach its maximum it is necessary (1) that the periosteal

strip should be pediculated (2) that its internal nourishing fibers should be in direct contact with the bone plate (3) that the bone plate tissue should be of relatively easy attack, presenting preferably a spongy character. The ordinary smooth surface of bone does not conduce to the transfer of the lime salts.

The authors think the foregoing by virtue of these findings and the results which they have obtained that bone anastomosis have no contestable advantage over other procedures and that such may even be efficacious in order to repair bone losses in other regions where the osteogenic activity of the periosteum can be utilized.

The accompanying schematic figure shows the arrangement of the plate and periosteal strips.

W. A. BRENN

**Bagic lup J. Tuberculomata of the Dura Mater**  
(Tubercular meningitis) *Sm. 1918*  
B. 1. 9. 7. 397

Bagic lup describes a case of two tuberculomata of the dura mater in a child. One of these the size of a walnut, as in the left parietal region. Its base was adherent to the meningeal membrane. The other was on the right side on the flank of the superior longitudinal sinus equally on the parietal. It was about a centimeter in diameter and semi-spherical.

The child died of generalized miliary tuberculosis. The tumors were found at autopsy and proved histologically. Such tumors are rare.

W. A. BRENN

**K. L. N. A. S. T. Cases of Cerebellar Cyst**  
J. M. I. S. I. M. S. 9. 7. 43

The author reports two cases of cerebellar cyst, one in a man of thirty following trauma, another in a girl of fourteen without evident cause.

In the first case the cyst was opened and lightly packed. A surprisingly rapid alleviation of symptoms followed. The cyst refilled and was aspirated two years afterward then one year later. Several months ago the cyst was opened and drained and the patient at present is well.

The second case had a simple cerebellar decompression done by another surgeon. About a month later the patient showed no improvement. The author enlarged the decompression located, opened and drained a cyst. At the present time more than two years since the operation the patient is well except for slight strabismus of one eye and unsteadiness on one foot.

Kitchen considers the various symptoms of cerebellar cyst including an account of disturbance of various cranial nerves. TORR HARRIER

**Abalos J. B.** A Cyst of the Cerebellar Fossa (Ousste de la fossa cerebelosa). *Rev. méd. d. Rosario* 1917 11 346

A woman of 28 experienced symptoms of headache, vertigo, vomiting and prostration which persisted and increased. The case was finally diagnosed as encysted meningitis in the left half of the cerebellar fossa. At operation an osteocutaneous flap disclosed the fossa. The dura on the left side was opened after a previous puncture which was negative. The cerebellar substance protruded through the opening. Punctures were repeated but were still negative. Exploration was then made with the finger. The cerebellar surface was soft on its convex face. When the finger reached the anterior face it opened a cyst in that region which emptied straw-colored contents. No further exploration was made. The wounds were sutured after placing a drain four months later the patient was in excellent condition in every respect.

The author draws attention to the three points of interest in the case: (1) the etiology of the cyst being consecutive to a strong emotion; (2) the inconspicuity of the symptoms which suggested a favorable prognosis; (3) the complete disappearance of the lesion with the rupture of the serous meningitis by the exploring finger.

The author discusses the origin of acute and chronic serous meningitis. W. A. BRENNAN

**Hammes E. M.** Traumatic Brain Lesions. *St. Paul M. J.* 1917 11 38

Hammes calls attention to the various theories advanced in the production of the initial symptoms of concussion. Kocher's theory of increased intracranial pressure, Crile and Cannon's theory of shock and others are mentioned. The symptomatology of concussion in the milder and more severe cases is fully discussed. Great stress is placed upon the performance of early lumbar puncture in every case of cerebral concussion not only for diagnostic purposes but as a therapeutic agent and to lessen the post-traumatic manifestations. The only contra-indications for this procedure are

a very high blood pressure and symptoms of marked intracranial tension associated with a low pressure of the spinal fluid.

The author divides the traumatic apoplexies into two great groups: those in which the hemorrhage is due to a ruptured blood vessel directly caused by the trauma and those in which the rupture occurs after some weeks or months due to necrosis involving the blood vessel wall.

Post-traumatic manifestations were observed by Sharpe in 67 per cent of his cases. Every functional case should be carefully examined for organic evidences. Frequently a marked increase in the pressure of the cerebrospinal fluid can be demonstrated and is associated with a chronic edematous brain.

Three cases are cited in full. A child three and one half years old developed Jacksonian epilepsy immediately following a trauma. Postmortem examination was negative. A young man developed symptoms of rupture of the middle meningeal artery four days after the head injury and was successfully operated upon. A young man developed headache and mental symptoms six months after a head trauma; an operation was successfully performed and revealed an adherent dura and marked engorgement and tortuosity of the intracranial veins over the site of the injury.

**Salmon A.** The Infundibular Syndrome in a Case of Tumor of the Third Ventricle (Le syndrome infundibulaire dans un cas de tumeur du ventricule). *Presse méd. Par.* 1917 578

Claude and Lhermitte reported a case of tumor of the third ventricle among other phenomena the patient showed disturbance of sleep and polyuria. In their conclusions the authors as the hypophysis was apparently normal described the syndrome as infundibular and not of hypophyseal origin.

Salmon criticizes these conclusions. He quotes the literature to show that there is a very close relationship between the infundibulum and the posterior lobe of the hypophysis. Cayrol and others have shown the presence of nerve fibers which have their origin in the retrochiasmatic region and after having traversed the infundibulum ramify in the hypophyseal posterior lobe.

Salmon thinks that when one considers the intimate functional relations of the hypophysis on the one hand with sleep and on the other hand with the regulation of water in the organism which relations have been affirmed in several cases of hypophyseal lesions and when one further considers the very strict relationship of the hypophysis with the third ventricle and infundibulum as proved by Cushing and others who found that cerebral tumors directly or indirectly compressing the third ventricle or infundibulum cause very clear alteration in the posterior lobe of the hypophysis it is quite legitimate to suppose that the infundibular syndrome described by Claude and Lhermitte in their case of tumor of the third ventricle is only a hypophyseal syndrome provoked by the infundibular affection. A hypo-

physcal syndrome of infundibular origin would therefore appear preferable to the infundibular syndrome adopted by Claude and Lhermitte

W A BRENNAN

**Doubler F H and Marlow S B. A Case of Haemorrhage into the Optic Nerve Sheaths as a Direct Extension from a Diffuse Intracranial Hemorrhage. *Arch Ophthalmol* 1917 15: 333**

Hemorrhage into the optic nerve sheath, retinal and retina not infrequently follows a fracture of the base of the skull but the frequency of its occurrence in spontaneous intracranial hemorrhage is uncertain and in this case similar to the one reported as found in the literature available

The patient was a negro with negative previous history who was seized with vomiting while working followed by unconsciousness. Death occurred ten hours later. Before death systolic blood pressure rose to over 300 and pericardial exudate on the fundi showed only a trace of intracranial hemorrhage

Autopsy disclosed aneurismal dilatation of the internal carotid artery on the middle third of the wall of which was extremely thin. It had not been ruptured. Other arteries of the same size were found in the artery but the central place from which the bleed occurred was not located

Microscopic examination of the eyes showed that the optic sheaths to be distended by a hemorrhagic ring overlying the papilla and extending in an irregular mass into the vitreous

It is of interest that an intracranial pressure great enough to force blood into the sheath of the optic nerve and apparently through the lamina cribrosa did not produce a papillitis. It offers evidence that tension is an important factor in the development of a choked disc. S S HOWE

**Manannan G and Pintos G. Traumatic Lesion of the Hypophysis Adiposa Genital Syndrome and Diabetes Insipidus. (*Léontine*) *Medicine* 1917 16: 105**

The authors relate the case of a boy of thirteen years who was accidentally shot the bullet passing sagittally in the middle line of the upper frontal region. No pain was felt nor was there any loss of consciousness. About a month later it was observed that he urinated copiously and that he was very thirsty these symptoms increased. Later the abdomen enlarged very markedly. There were neither nervous nor psychic disturbance. The sexual organs showed an evident arrest of development. They corresponded to those of a boy of eight or nine years and there was no sign of secondary sexual characteristics

Radioscopy showed that the bullet was situated in the region of the sella turcica without invading the hypophyseal region proper. Injections of

pituitary extract caused marked decrease of the polyuria temporarily

Surgical intervention was decided upon. The amount of urine passed at this time about twenty months after the traumatism was eight or nine liters in the course of 24 hours

A craniectomy was done. The region of the sella turcica appeared normal. The projectile could be felt through the optic chiasm in the depth of the middle ventricle. Owing to the bad condition of the patient the operation had to be suspended. The boy died twenty-four hours later

Autopsy showed the bullet embedded in the middle ventricle. The hypophysis was not directly injured nor compressed its communication with the middle ventricle was interrupted

The authors say that this case confirms even better than experimental demonstrations the theory that a hypophyseal lesion determines the adipose genital syndrome described by Lannois and Frolich. But the case is even more striking than others reported in literature because the arrest of genital development is at a particularly interesting age and the abdominal adipose increase could be observed

The author discusses the relations of diabetes insipidus to the hypophysis. He criticizes the results found by authors who have reported on the matter with recent years and finds that the evidence shows decisively that hypopituitarism is the cause of diabetes insipidus because polyuria disappears when pituitary extract is administered. The authors case shows that this same phenomenon as did also two other cases of diabetes insipidus which are mentioned. They are therefore of the opinion that diabetes insipidus should be classified in the hypopituitary syndrome

Admitting this fact the case reported is important because it demonstrates in an absolute manner that the section of the so-called hypophyseal stalk is followed by the same consequences as is the section of the gland itself. Biedl and Cushing had supposed that the terminal portion of the gland passed through the stalk into the chiasm and had an fluid of the middle cerebral. However in the posterior lobe there are some intact nerve fibers hence it may be supposed that the interruption of the stalk was not complete this would account for the slow development of hypophyseal insufficiency

At first view this case showing a lesion of the infundibular region without a true lesion of the hypophysis could appear to sustain the hypothesis supported by some clinicians that the lesion responsible for polyuria is not in the hypophysis but in a nerve center at the base of the encephalon. But this theory is untenable from the fact that hypophyseal opotherapy caused the polyuria to disappear

The author thinks that there is an endocrine action which physiologically acts on the kidney and regulates diuresis. The mechanism of the hypophyseal action on diuresis can only be considered as hypothetical at present. W A B

**Johnston G C** Roentgen Observations of the Pituitary Region in Intracranial Lesions  
*Am J Roentgenol* 1917 iv 555

Intracranial lesions manifest themselves roentgenologically by variations in the thickness or density of different parts of the bony structure changes in the shape or size of the sella overgrowth of the clinoid processes localized differences in the blood vessel grooves or unusual appearances of the sutures or inner table of the skull Detailed descriptions of different pathologic processes illustrated by numerous photographs are given and the technique employed is described The findings are summarized by the author in the following conclusions

The first requisite for study of intracranial lesions particularly of the sella is a wide familiarity with roentgenograms of the normal conditions and mastery of a technique resulting in uniform production of roentgenograms of unusual definition and excellence

There is a wide variation in size and character of the sella which must be considered within the limits of the normal

Idiopathic epileptics in a large proportion of cases show definite changes in the region of the pituitary

Pituitary struma manifests itself by deformation and destruction of the sella rarely by visualization of the tumor itself Intracranial tumors other than those of the pituitary frequently so manifest their presence as to permit of their detection by roentgenography

Every patient showing evidence of optic atrophy bitemporal hemianopsia papilloedema or loss of vision is entitled to a careful roentgen exploration of the sella and intracranial region

ADOLPH HARTUNG

## NECK

**Malherbe A** Wounds of the Cervical Region (Blessures de la région cervicale) *Bull méd Par* 1917 xxx 329

Malherbe discusses the treatment of various war wounds of the cervical region With regard to penetrating wounds of the hyoid region there are no fixed rules with regard to suture If the wound is not deep and there is no communication with the digestive tract it should be sutured as early as possible but if the wound is deep infiltrated or infected it is best to draw the deep parts together with a few stitches and leave the external wound open inserting an esophageal sound to avoid passage of food through the wound Reported lavage should be used

Similar procedure is followed with regard to laryngo tracheal wound Suturing often transforms a large wound which would perhaps heal without complications into a narrow and dangerous wound However if the laryngo tracheal canal is more or less sectioned and its two ends notably separated they should be brought together by a few silk sutures the head being placed in flexion

this helps to approximate the ends Even if tracheotomy has been done it is always best not to make a complete suturing if there are deep pharyngeal or esophageal lesions W A BRENNAN

**Torrance G** Goiter Surgery with Report of 29 Cases *Boston M & S J* 1917 clxxvii 700

The author reports the following series of 29 cases with but one death which was a secondary operation in a severe exophthalmic case The cases included the following types large cystic exophthalmic 10 single large cyst 1 calcified 1 adenoma 3 substernal 3

In his article the author quotes numerous important observations from other authorities

As regards causes Rosenow has found that bacteria can be grown from some of the glands Buford has found cheesy masses and pus in tonsils of children with enlarged thyroids He finds the right lower lobe more often involved in this type of case There may be an ancestral history of goiter Mental shock or strain is frequently associated with exophthalmic cases

Dubois has found an increased basal metabolism of from 50 to 75 per cent above normal in marked cases of exophthalmic goiter Kendall has found the iodine content of the gland to be made up of two groups called A and B and in about equal quantities Group B has but slight physiologic action while group A has an iodine content of about 60 per cent and a marked physiologic action Small doses of 1 180 gr a day has caused marked improvement in cretins

Regarding pathologic changes in the exophthalmic goiter Watson notes marked weakness of the quadriceps muscle in a patient climbing stairs and in the intercostals and diaphragm by the shallow hurried respiration Relaxation of the muscles of the eye may be responsible for exophthalmos There are marked changes in the myocardium and changes in the sympathetic ganglia Kocher says there is always hyperplasia in exophthalmic goiter but that the thymus is enlarged in about 45 to 50 per cent of cases By removing a portion of the thyroid the thymus retrogrades

Tausig says the vascular changes are analogous to aortic insufficiency Blood pressure is higher in the thigh than in the arm (20 to 26 mm)

Payr has made transplants in seven cases and finds the gland is gradually absorbed in seven cases being present for two and one half years Kocher transplanted a gland in 93 cases and in reports from 57 had 21 successful with no other treatment 18 taking treatments of thyroid and 18 failures The gland should be living and transplanted into a vascular tissue spleen or bone marrow C A BOWERS

**Judd E S** Results of Operations for Exophthalmic Goiter *Long Isl Md M J* 1917 x 405

After a brief resumé of the various theories as to the cause of exophthalmic goiter the author proceeds to give the results of operation upon

176 patients in the year 1909. Fifty-five cases or 46 per cent are considered cured as far as known or are entirely relieved of their former symptoms as far as emaciation is concerned. Some of these cases had lived on only and they may show later recurrence. It is the custom at the Mayo Clinic to do a preliminary leg-tendon-duct-local-anæsthesia and if no reaction follows at the end of about seven days a resection is done. In case severe reaction follows the fluctuation the right superovascular ligament after the resection subsides. After the second ligament on a period of three months allowed to lap before a thyroidectomy is done. Some of the patients who are severely claustrophobic do not return for the thyroidectomy.

Tenety-two cases or 6 per cent were practically cured of all their symptoms though at times they still show slight evidence of the disease. Several cases or 6 per cent remain only improved though evidence of their old trouble is almost constantly present.

Five cases or 4 per cent received comparatively slight benefit from the operation. Light cases or

6 per cent derived little or no benefit from the operation.

Eight of the thirteen unsuccessful cases had a considerable degree of dilatation of the heart and several of them had œdem of the extremities at the time the operation was performed.

The functional results following operation have been satisfactory. The scar from the low collar incision is inconspicuous and the normal motion of the head and neck returns in a few weeks. The disturbance of motion in some instances has always proven but temporary.

Of the 16 patients operated upon in 1909 7 died while still in the hospital. The author states that a brief resume of all the cases which have died that they were extremely toxic and the cause of death was an continued intoxication which had already produced irreparable damage usually in the heart and kidneys.

He concluded from this study that an absolute cure may be expected in about 46 per cent in addition to his number about 3 per cent will be practically cured. Six per cent have reported that they received no benefit. ELI F. CHEL

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

Atter on J. The Surgical Treatment of Secondary Penetrating Wound of the Chest in Casualty Clearing Station B. I. M. J. 97 573

The author classifies wounds of the chest as seen at an advanced casualty clearing station in two groups from the point of view of prognosis. The first group includes entrance and exit bullet wounds entrance and exit shrapnel bullet wounds and wounds caused by small fragments of high explosive missiles. These cases do exceedingly well if treated promptly at a respiration or operation upon when cases on demand.

The second group includes wounds caused by large irregular fragments of high explosive shells which have lodged in the thorax. These are almost always associated with clothing and insect on carried in and on sucking wounds of the chest wall. If treated promptly only a very small percentage of these cases reach the base hospital and many of those that are evacuated from the complications of their wounds. In this group are also included tangential wounds of the thorax infiltrating the ribs and driving portions of bone into the pleura and lung and entrance and exit bullet wounds in which the exit wound is explosive in character. The prognosis in these cases is usually not so severe but an unusually large percentage develop an infected hæmorrhage unless the chest wall is treated energetically. The cases in the second group have usually died at the casualty clearing

tation from sepsis and exhaustion many of these cases could be saved by immediate surgical intervention on the lines adopted for other wounds.

The principles of operation are to completely excise the wound in the chest wall wipe out the pleural cavity if the lung has collapsed and hæmorrhage is to sarcofibrofibrous bodies and remove fragments to lose the wound completely.

Solutions of silver and brilliant green have been used without satisfactory results and probably the advantage. The aim of the operation is prophylaxis against sepsis. If it fails a secondary drainage operation may be required.

E. B. FREILICH

Roberts J. L. H. and Carg J. G. The Surgical Treatment of Secondary Penetrating Wounds of the Chest B. I. M. J. 97 56

The authors report the results of their experience with the treatment of penetrating wounds of the chest. Of 97 cases 103 were evacuated without operation 4 died without operation and 67 were operated upon. Of these 60 apparently for a few hours 34 eventually recovered and were evacuated to the base hospital. Of the 33 fatal cases 16 had other gross lesions which were more directly responsible for the fatal result than the penetration. Excluding these cases the mortality in the 51 main cases was 33.3 per cent and the recovery rate was 66.6 per cent.

The principles followed in these cases involved early operation free excision of all infected tissue

removal of the foreign body and cleansing of the pleural cavity or wound of the lung followed by accurate suture of the lining membrane and tissues over it whenever possible without drainage. No cases were drained unless the chest wall could not be closed owing to the condition of the patient or if infection of the lung or of the pleura as distinguished from its contents was definitely established.

Results have shown that even though anaerobic bacilli or streptococci are present the pleural sac can be completely closed with success. The most common cause of death in the chest cases with no other injury was septic bronchopneumonia of the uninjured lung. As a prophylactic measure there fore creosote was given and also antistreptococcal serum in severe cases which seemed to have some value. E. B. FREILICH

**Rudolf R. D.** The Later History of Cases of Gunshot Wounds of the Chest with Retained Missiles. *Lancet* Lond. 917 cxxii 709

Rudolf attempts to ascertain from a study of fifty cases followed to their ultimate conclusion whether or not a foreign body in the chest should be immediately removed. All cases showing a foreign body deeper than the ribs are included irrespective of whether or not they had penetrated the lung. Only two died. In the case of one an abscess formed around the foreign body. The abscess was drained and the foreign body removed. The patient died from hemorrhage on the eleventh day after operation. The other patient died three days after the removal of a rifle bullet from the lung apparently from pulmonary thrombosis.

Twelve of the others were permanently disabled for further military service. The remaining thirty-six or 72 per cent. were fit for some duty. Nearly all complain of some cough, shortness of breath and pain in the chest but the author says he cannot say that they complain more than those in whom the missile has passed through the chest and out. Large pieces of shell and shrapnel in the author's opinion should be removed at once because of danger of gross infection and severe hemorrhage.

C. A. HEDBLOM

**Harris M. L.** Hernia of the Breast. *Surg. Clin. Cl.* 90 97: 959

A girl about fifteen years of age presented herself on account of an apparent enlargement of the right breast. She was well developed physically and her health in every respect quite good. Menstruation appeared at the age of thirteen and was normal in type and regularity. A year previous it was noticed that the right breast which was slightly larger than the left was becoming more prominent about the nipple.

The girl had had no serious illness and aside from the condition of the breast had no trouble whatever. An examination of the breasts showed the right

slightly larger than the left and both quite well developed for a girl of her age. The nipples were small and flattened. From the center of the right breast there protruded a large dome shaped mass measuring 7 to 8 cm. in diameter at the base and raised about 6 cm. from the surrounding surface. The nipple occupying the apex of the mass. The areola which was normally pigmented was considerably enlarged and covered the top of the mass. The mass felt firmer than ordinary fat and was distinctly lobulated.

Surrounding the base of the mass could be felt a well defined subcutaneous ring with a distinct rather sharp edge. The ring felt like the opening in an umbilical hernia except that the edge of the ring was not so thick while the mass felt very much like a mass of omentum in an umbilical hernia. With gentle pressure the mass could be pushed back through the ring very much as one reduces an ordinary hernia. The breast then resumed a normal appearance with the exception of the areola which became wrinkled and puckered. On removing the pressure the mass immediately reappeared by sliding out again through the ring. As it appeared the rotundity of the breast diminished accordingly. It was evident that the mass was the gland proper which had slipped through a rather large opening in the subcutaneous fascia which normally covers the breast and retains it in place.

Under local anesthesia four small incisions each about 8 mm. in length were made in a radiating direction dividing the circumference of the areola into four equal parts. The incisions extended through the skin and were located just within the ring of subcutaneous fascia through which the breast was escaping. A long straight needle threaded with soft twisted silk was introduced through one of the small incisions so as to pick up the edge of the ring. Several stitches were taken in the edge of the ring until the point of the needle had reached the next small incision 90 degrees removed when the needle was brought out. It was then re-introduced through the same opening and the next 90 degrees of the circumference of the ring taken up in the same way and the needle brought out at the next small incision. This procedure was repeated around the edge of the ring until the needle was finally brought out at the incision through which it first entered.

There was now a circumferential subcutaneous stitch in the edge of the ring. Three more stitches were placed in the same way each a little farther out in the edge of the ring making four rows of silk sutures surrounding the opening. The sutures were then drawn up narrowing the ring but leaving it large enough to give free passage to the ducts leading to the nipple. The thread were all tied the ends cut short and the four small incisions closed with horsehair.

The result of the operation has been very satisfactory and at the end of a year there has been no recurrence. EDWARD L. CORNELL



M nf edl L A Ca of D pl co cl Empty ma  
witi Ea ly P forati n in th Lung (S d  
d mp m dpl p f t p  
m t l p lm ) P l l P m 9  
d 46

A case of empyema in a soldier is reported. After  
ix d ys of fev s gns of incipient diplococcic pleu  
t s pp r d Puncture of the left pleural cavity  
d w a seropurulent fluid containing c psul ted  
d plococci On the el venth day the patient vomited  
about 35 ccm of purulent coff c colored fl id  
A tho c nt ss dr w simil r fl id in which th  
d plococcus w s found but only spaly

Pur l nt pl t s which s s lly a second ry  
manife tat o m y b d t dff nt m cro org n  
isms but it lly d e to the p mo oc us  
The figur s of dff nt tig to sho that f m  
39.4 to 8 per cent of e p e m o o c  
Others f nd th t pto c to be th most us l  
agent A purule t pne mon ple t usually  
terminates by vomiting but th s does ot usually  
occur until bet een the fitee th and thrt eth day  
Th opening of the empyema into the lu g on the  
el nth day in the case reported seems worthy of  
not ce

W A BRE AN

Hoxie G H Tl Adult Tlymus nd Its Two  
Types of Dy function J M St M A  
19 7 389

The author gies the mbryology and a tomy  
f the thymus gland with a detailed des iption of  
the mcr scopie histology. The symptoms of per  
s stent or enlarged thymus in children are largely  
mechan cal du to pr s ure as obstructive dyspnoea  
and opp ss on of the upper chest a companied by  
the phy cal find ngs of submanubrial dullness with  
po sibly tr d r ver th manutrium due to com  
pression of th t hea by the enlarged thymu  
The \ay sh w d t nct v thymus shad w  
In adult the ympt ms usu lly d e to nt rnal  
glandula se eto m n fested by w akne  
shortness of beath d w akn s f appar th  
strong muscle p ct cally my sthen a gr i  
minus bulba symptom

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s all w ng ( ) enla g d o ta r nury m wh h  
m n fested by pulation (3) pe b nchal lymph  
gl d n which the l p c ant ror t th  
sp e s tilled A pou e DE p n c nfrms th  
latte M cr scopie am n t f tssue sh w s a  
predom a ce of lymphod lem nts n the hyp r  
plastic thymus f childhood tl flence being  
mainly mechanical Wh e h torv d m nstrat s  
endocri e d t r l nce a ct at d thymus  
gland in ad lt the pith lial el ments pre  
dominate

The treatm nt n children on t of the opera  
ti e removal of the gland or its de t n by \ ray  
In adults thy od and sex glandular x tracts are  
used the latte apparently bein antagoni t c to the  
thym s Hypod rmic arsenic is a al able adju

ant If unavailing heavy the apeutic \ ray doses  
o e ci on of the gland may be resorted to

H H FREILICH

## TRACHEA AND LUNGS

Ro l nd \ C T heal D spl ment nd  
C mpression in Int t r ic Dis ase Cln  
l d H J 9 7 75

P \ anl b l s that the frequency and degr e  
f t he l l pl ment nd comp ss on in intra  
th d s a a not g ne lly appreciat d  
Ma v f th symptoms n t thoracic disease are  
d et n ol m t ot the trachea A symptoma  
t logy f t cl l di placement per se m y be  
e tabl h d h h is of pratical v lu in dagnosis  
a d t m t Th s chang s in th trachea ar  
most commo ly p nt n tub reulo In early  
mild gra le th f qu ntly m rk d conveyo  
ot th tra h su lly to d the affected s de  
be t s en on \ r y plates Sometimes there i al o  
anter p terior fl tten g and sometimes rotat n  
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d pl c ment may b vtr m In large pleu al  
ffu on r mp m ngul r displac m nt of the  
tr che may p d cc the typic l dry bra sy co gh  
fa t c ne i m Mid st n l tumo tuberculous  
b on h l gl nd Hodgk n s d s s and even the  
old ab s of Pott s d s as by press g on the  
root of th t hea may p oduce such a cough

The suby t symptoms of tracheal displac  
m nt and comp ss on nd pendent of underlying  
aus a e cough dyspnoea stenotic stridor and  
bro h al spasm The cough is of a dry irritative  
typ Dyspnoea is due to tracheal stenosis

Obj ct eal inspection and p lp tion of the neck  
may sho d splac m nt The \ r y shows marked  
d spl m nt of the mediastin m nd of the posi  
tion of th tr ch a L ry go copic examination  
may sho a rotation of the o l ord through an  
angle as high as thi tv deg Percussion may  
g ve an overtone of tym p ny and bro chial breath  
ng at th p x on th d tow r d hi h the trachea  
s d splac ed

Mark d tra heal displa m nt is in general a  
o tra nd at on to art f l pneumothora be  
au t m pl s the pr n of pleural adhes o s  
Abs n e of t che l di pl ement is ev dence of  
lv l ttle or of no fl id in th pleural a ity  
D pl m nt of the tr chea helps to diffie nt ate  
hæm th f om ond tion vbi h may smul t it  
s h pn umon a and the progressi e oll pse of  
tl l g f om bull t wounds as i cas s r ported  
f om th font

C A H LOW

Jacks n C A N w M thod f Wo King Out  
D ff ult Mechanical Problems f B nch  
op F gn Body E t a ti n L y g p  
9 7

In cas s of f e gn bodies lodged n the bro chi  
which p ov d fficult to remo nd in which the  
us f tock instruments h s been unav ling the

author has been able to solve the problem by means of probes and various forms of instruments bent and made to suit the purpose demanded by the mechanical problem presented in the particular case. These were tested out on a manikin and if successful were used on the patient usually with success.

The author concludes the following:

1 Tool steel probes formed by the bronchoscopist himself to suit the particular case are an addition to the means of solving mechanical problems of bronchoscopic foreign body extraction.

2 To pursue a foreign body downward is to court disaster.

3 Care is necessary to avoid forming hooks that could catch in the bronchi or become entangled in the foreign body. The shape should be such as to favor unscrewing out if caught. H. H. FREILICH

**Murphy J. W. Bronchoscopy and Œsophagoscopy** *N. Y. St. J. Med.* 1917 xvii 513

The author first used the Kirsten laryngeal speculum in 1894 for the direct examination and treatment of the larynx. Later with the evolution of the bronchoscope and œsophagoscope he was able to extend his examinations below the vocal cords and into the inner recesses of the lungs and the entire œsophageal tract. There followed a multiplicity of instruments of various designs so that it was difficult to decide between the good and the bad and a rather expensive outfit seemed necessary. Experience has proved that such is not necessarily the case and that good work can be done with a few well selected instruments.

The technique suitable for this line of work is obtained only by long practice. Jackson finds after years of experience that he is able to do his most satisfactory work with many of his earlier devised instruments. No instrument has yet been devised that can overcome a faulty technique. Delicate manipulation at the end of a long narrow tube with the vision of only one eye available requires continued practice.

The suspension method of Killian at first presented many difficulties but many of these have been overcome by the modified technique of Lynch of New Orleans. The mechanics applied in suspension laryngoscopy if not properly directed are capable of causing serious and permanent damage. Under the suspension method the entire larynx is exposed and both hands are free to do any surgical work required. For operative and diagnostic purposes this method is ideal.

The position of the patient for bronchoscopic and œsophagoscopic work is a question each operator must decide for himself. Some prefer the prone position others prefer the upright position.

The question of whether to use an anæsthetic either local or general is often difficult to decide. In the case of children with a foreign body in the bronchi the author prefers to use no anæsthetic either local or general. One of the great dangers

in this line of work is a prolongation of the examination in an attempt to extract the foreign body. Several short examinations are preferable to one prolonged examination.

The author regards every foreign body in the bronchi or œsophagus as dangerous and the longer the removal is delayed the more serious the prognosis becomes. The author has had 3 fatalities out of 112 cases and the more he sees of this work the more he is convinced that every foreign body in the bronchi or œsophagus is dangerous to the life of the patient.

The author reports a case in which a metal cap from a beer bottle was successfully removed from the œsophagus of a five year old boy where it had been for eight months. He also removed a sliver of chicken bone that had been pushed under the mucous membrane of the œsophagus in an attempt to force the foreign body on into the stomach.

**Petit de la Villeon. Presentation of 25 Cases Operated upon for Intrapulmonary Projectiles** (Presentation de 25 blessés opérés de projectiles intrapulmonaires) *Bull. Acad. de Méd. Par.* 1917 lxxviii 604

In the cases reported the extraction was always made under the guidance of the radioscopic screen. The projectile particles were situated in the lung at depths varying from 3 to 10 cm. in the parenchyma all were cured without complication.

Since opening a new service in Paris the author has treated 104 cases. All recovered. His total statistics show 34 cases operated upon for intrapulmonary projectiles with 233 recoveries.

W. A. BRENNAN

**Jacobseus H. C. and Key E. Some Experiences in the Operative Treatment of Eingrüssen** (Eingr. Erfahrungen von operativen Eingriffen bei Lungentuberkulose) *Nord. Med. Ark.* Stockholm 1916 xl v *Kirurgi* H. 6 No. 23

Concerning the operative treatment of tuberculosis the authors agree that thoracoplasty is only indicated in cases where pneumothorax treatment has failed or is not applicable. The forms of tuberculosis which yield the best results to this treatment are those of shrinking chronic phthisis with one lung cavernous and symptoms of displacement of heart and trachea. The results in the operated cases have verified this view. It is also indicated in cases of unilateral lung tuberculosis with repeated hæmorrhages.

In cases where there is partial destruction of one lung with cavernous areas in the superior lobe but a relatively sound inferior lobe a thoracoplasty would entail a considerable loss of sound parenchyma. Such cases must be considered individually it may be possible to apply pneumothorax above the inferior lobe and a thoracoplasty over the superior lobe in adaptable cases. Encouraging results have been obtained by the authors and others in such cases.



# Mejer W Rectangular Flap Incision for Operations Within the Upper Abdomen *J Am M Ass 1911 Nov 16 7*

The author reviews the tendency to deviation from the usual incision in the long axis of the body as shown by the work of Trendelenburg Pfannenstiel and Sprangel. The latter showed that the tendency of the wound edges in the longitudinal wound was to gape under strain while the transverse incision tends to approach its borders under the same conditions. More recently in this country Farr Moschowitz and the author have called attention to the decided advantage of the transverse incision in that closure is easy and reopening will hardly ever occur even if the wound becomes infected and necrosis of fascia in case of infection within the abdomen occurs rarely.

The disadvantages of the transverse incision in the upper abdomen are the difficulty in removing the appendix in sufficient exposure in gall bladder cases and inability to properly rotate the liver in the same cases. To overcome the first difficulty the author has at times extended the right end of the incision downward.

The author describes the two types of rectangular flap incisions for operations within the upper abdomen especially on the right side. The first of these was proposed by Koenig and Kehr and consists in making an incision through all the layers of the abdominal wall from the xiphoid along or through the inner border of the right rectus and then extended at right angles to about the anterior axillary line. Before dividing the rectus it is stitched to the fascia as in the ordinary transverse incision. The access obtained is excellent. Drains if needed may emerge at either the upper or lower angle.

In the other or Perthes incision a rectangular skin muscle flap is raised. All the structures down to the posterior sheath of the rectus and peritoneum on the muscle being stitched to the anterior sheath only are incised and reflected back to the costal margin. The abdomen is then opened parallel to the costal margin and one third of an inch in front of the point of exit of the two intercostal nerves.

The principal advantages of this incision are

1. Wide access is gained to the upper abdominal cavity much better than by the longitudinal or transverse incision.

2. There is the same preservation of the muscle innervation as in type one a factor which gains in importance in strong muscular male patients.

3. The incision through the posterior sheath of the rectus and the peritoneum down to its lower angle is nowhere in the same line with the skin incision. It is situated on a higher level and runs in a different direction than the transverse cut dividing the anterior sheath of the rectus and the muscle a point which greatly adds to the firmness of the resulting abdominal scar and thereby guards against the occurrence of a ventral hernia even in suppurative cases.

4. The oblique cut through the transverse fascia and peritoneum usually meets the very border of the liver or in case of ptosis its convexity is the same as the Courvoisier incision which practically run in the same direction as the oblique cut in Perthes incision however it divides all the layers of the abdominal wall in one and the same line including the nerve. The liver can be turned upward or pulled out in front of the abdominal wall as the case may require and the fixation of the liver will permit.

5. The small intestine does not crowd into the wound usually only the omentum and the colon or the omentum the colon and the pyloric end of the stomach with the duodenum come into view. The small intestines remain protected by the packing required.

6. On the left side of the median line the additional cuts made through the seventh costal cartilage near the sternum and from the seventh to the tenth individual rib cartilages near their junction with the bony substance as needed for the osteoplastic raising of the costal arch in stomach operations near the cardia are rendered easier than in type one. The costal arch is to be approached in this osteoplastic operation underneath the belly of the rectus muscle and above the transverse fascia. Here it can be easily and thoroughly exposed.

Drainage is carried out at either end of the incision. The patient must be completely relaxed by sufficient anesthesia and elevation of the upper part of the body. The posterior sheath of the rectus and the peritoneum are closed by a continuous not interlocking catgut suture and the anterior sheath of the rectus is then stitched after having placed two cigarette drains beneath the flap. Closure is facilitated by placing one interrupted suture at the angle and one silkworm gut may be used at this point. The skin is closed by fine catgut or silk. After operation the patient is placed in an exaggerated right Sims position for the first twenty-four to thirty hours.

The author has used the rectangular incision of the first type in 3 cases and the second or Perthes type in 21 cases. The latter in particular on account of the excellent exposure and ease of closure represents a valuable addition to our resources. No one incision represents a panacea. One must adapt the incision to the individual case and not the case to the incision.

S. A. CHILFANT

## Stassen M and Voncken J The Peritoneum in War Surgery (Le peritoneum en chirurgie de guerre) Paris: Baillière et Fil 1917

The extensive study of war wounds involving the peritoneum comprising 160 pages by the Belgian surgeon Stassen and Voncken is a first hand contribution based on their actual clinical experience in one of the large hospitals on the Yser front.

The authors classify abdominal injuries according to the following general scheme: (1) extraperitoneal (a) parietal or (b) visceral (2) intraperitoneal

(a) without rupture of the intestinal tract or  
(b) with intestinal tract rupture univisceral or  
multivisceral

A wound of the retroperitoneal osteomuscular wall only of an organ in the retroperitoneum without touching the serosa is an extraperitoneal wound. Chapter 11 is devoted to the discussion of peritoneal and visceral retroperitoneal wounds with clinical illustrations.

Visceral retroperitoneal wounds have given the authors symptoms more marked and more alarming than peritoneal injuries. Such symptoms have often caused doubt between a tube and fallopian tube of the peritoneum.

The symptoms which give the impression of peritoneal penetration are dullness over the live muscular rigidity of all or part of the anterior wall vomiting small pulse frequent abdominal distention of flatus and feces high pulse more than twenty-four hours retention of urine traumatic shock.

Any one or more of these signs may show in an abdominal injury but the occurrence of all together is rare. When the whole syndrome is observed the reason often found in causes outside the peritoneum. Before the existence of any of these symptoms would usually have been considered by many authors indicative of intraperitoneal penetration but the authors show that these symptoms can be clearly negated by lesions which do not involve the peritoneal cavity. For instance tympanitis was observed in 56 per cent of the series of retroperitoneal wounds.

Regarding retroperitoneal wounds without perforation of the digestive tract seems at first few that active operation is indicated does not effectively cure patient who would recover spontaneously. The author thinks however considering the circumstances of time and place at the front and the arrival of wounded in the hour immediately following the traumatism when there is often a pathognomonic symptom diminishing attention that because of the necessity of intervention in cases where perforation totally is an exploratory laparotomy should be done. There is no certainty concerning the duration of the symptoms to give to permit possibility of bled into the retroperitoneum. In several series the author's retroperitoneal operation did not rupture should tell the nature of these retroperitoneal lesions.

The cases of retroperitoneal lesions and observed have clearly shown that there is a clearly pathognomonic symptom. The signs which differentiate them from nonperitoneal wounds. The classical symptoms are only observed in 7 out of 16 a tubular rigidity of the anterior muscular wall. In 8 of these cases other symptoms occur. The special conditions in which a general retroperitoneal lesion may be waived and a procedure at once to operate in order to do so doubt. To wait for the development of

signs of perforation is generally to abandon the chance of saving the patient.

In 180 cases of operated univisceral wounds the authors have had 6 recoveries and 15 deaths. In 119 series of multivisceral wounds there were 16 survivors and 33 deaths.

All the signs of peritonitis which observed in patients without peritoneal perforation are found also in retroperitoneal lesions. It is only a question of degree which differentiates one from the other. There is no absolutely constant symptom. There is perhaps only a sign which denotes peritoneal perforation viz the rigid abdomen especially high abdominal distention retroperitoneal respiration. But this is not always present in the latter stages. This is the important symptom which is not usually found in retroperitoneal lesions can not be laid upon to be present in retroperitoneal wounds.

As regards treatment a case with a suspected perforation of the digestive tract ought to be operated upon immediately at the advanced operating posts or through the firm line and ought not to be exposed to the risks which occur in evacuation to distant hospitals. This rule applies even when the wound of the retroperitoneum from the retroperitoneum when the trajectory might cause a suppurative peritoneal lesion. At the advanced surgical post examination and diagnosis is made. If the wound is in the abdominal region the trajectory should be systematically followed layer by layer until the perforation is reached. Often this is found to be retroperitoneal and unnecessary opening of the peritoneal cavity can be avoided.

Through and through wounds which do not at first suggest retroperitoneal penetration are best treated by median exploratory laparotomy. In all doubtful cases a decision should be made to exploratory laparotomy.

The authors think that even in the case of those badly shocked who show the complete abdominal syndrome and whom many fusions have failed to revive operation is indicated be the rule. Such operation may be due to an arterial hemorrhage and if only the only chance to stop the bleeding vessel. It is impossible to live to differentiate between traumatic shock and hemorrhagic shock. Even at the risk of adding the operation of hemorrhage to the traumatic shock the author's thinking that the surgeon's duty to proceed systematically with the operation on the retroperitoneal lesions is the chance of being saved from retroperitoneal lesions.

The title of the article is a detail of the clinical aspects of the lesions to those who have been interested.

W. A. BRENNAN

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retracted the sac is isolated and dealt with the weak fascia between Poupart's ligament and the conjoined tendon is picked up with forceps and is divided parallel to Poupart's ligament care being taken not to injure the deep epigastric vessels. The fascia transversalis is freed thoroughly from the retroperitoneal fatty tissue both upward under the conjoined tendon and downward to expose the deep aspect of Poupart's ligament. The fleshy arch of the internal oblique muscle is retracted forceps are applied to the glistening fascia on the deep aspect of the conjoined tendon so as to draw it into the wound. This fascia brings with it the lower aponeurotic portion of the transversalis muscle.

The mattress suture is used to approximate the fused fascia and aponeurosis to the deep aspect of Poupart's ligament. The outermost suture is introduced first. The aim is to restore the fascial internal abdominal ring placing the restored ring under the supporting fibres of the internal oblique muscle. By carefully retracting Poupart's ligament forward and passing the needle from within outward to emerge where Poupart's ligament blends with the fascia lata of the thigh these sutures are safely introduced. It is important that the remains of the fascia transversalis still adherent to Poupart's ligament should not intervene between the opposed structures this is easily avoided if the fascia is retracted forward with Poupart's ligament. When tying the mattress suture nearest the abdominal ring care should be taken not to narrow that ring unduly. The cord is allowed to fall back into its bed. The external oblique aponeurosis is sutured and the wound closed. E. C. ROBITSEK.

**Brossy J. The Hernia Operation in Children and Its End Results.** (L'opération de la hernie chez les enfants et les résultats obtenus) *Rev. méd. de la Suisse Rom.* 1917 xxvii 473

Brossy's study is based on 87 operated cases seen after a minimum period of 9 years after operation. The operations were carried out in the Children's Hospital at Lausanne between 1888 and 1905. During this period 333 cases of hernia were operated. There was no case of crural hernia in the whole series the majority were inguinal.

As regards inguinal hernia those who are familiar with infantile surgery will realize that there are two distinct types. In one the peritoneal sac and tunica vaginalis process are identical and separation is difficult and artificial. In the other the sac is quite independent and is easily separated from the cord and testicle with which it has no relations. This simple classification corresponds to the facts and is capital from the operative viewpoint. Of 215 operated cases in recent years 21 were found to be of the first variety in 12 there was difficulty in separating the sac and in 182 it was quite easy to do. Visceral adhesions are not met with as in the case of adults the contents are always free and reducible. In these 215 cases ectopia was found only 7 times.

As regards sex incidence inguinal hernia was

observed in 8 cases in girls as against 215 in boys. In 19 of the 28 cases the hernial sac was intimately related with the round ligament ovary or tube. Strangulation was observed only in 6 cases out of 250.

With regard to mortality of 642 cases operated upon for hernia between 1888 and 1915 9 died during their stay in the hospital 2 of these were not due to operation and 4 deaths were apparently due to the conditions of hospitalization which were not good at Lausanne prior to 1912. Brossy thinks that children of tender age should never be operated upon without necessity except in an especially suitable hospital. Of the 9 cases of death 5 were double inguinal hernia a mortality of 55 per cent. Of these reviewed 13 per cent had a hernia of this variety.

Brossy states that the radical operation for inguinal hernia in children gives excellent end results when carried out under suitable hospital conditions. Operation is easier than in the adult as many of the secondary deformations have not had time to develop. In infants under twelve months operation is indicated only in certain conditions menaced strangulation large unmanageable hernia etc. Above twelve months the indications for operation occur in the large majority of cases if conditions are otherwise satisfactory. The limit of two years which is generally admitted as the lower limit of operability does not appear to the author to have any precise bearing.

As regards the operative method a simple operation was carried out in 6 cases. These gave 20 per cent recurrences. The author therefore thinks this procedure is unfavorable and to be condemned without discussion.

A table gives complete statistics showing the sex the side attacked by hernia and the age at time of operation.

Of these 299 cases of operated inguinal hernia 236 have been followed more than 9 years with the following results. For right inguinal hernia there were 121 persistent recoveries for left inguinal hernia 67 recoveries for double inguinal hernia 27 recoveries for double inguinal hernia operated on one side only 5 recoveries. Recurrences of right inguinal hernia were 13 left inguinal hernia 4.

This shows 6.44 per cent recurrences and 93.56 per cent cures and justifies the radical cure in infantile inguinal hernia. The recurrences were generally in boys and the majority of these were operated late i.e. between 4 and 8 years.

In addition to the inguinal cases 25 cases of umbilical hernias were observed in 19 boys and 6 girls. Of these 16 were operated and all are perfectly cured.

The author's general conclusion from all the cases is that the radical treatment of hernia in children is an excellent operation and that its end results are far superior to those obtained in the adult. The older the child the greater are the chances of recurrence.

W. A. BRENNAN.

Mayo C H Enterotomy and the Use of the  
Omentum in the Peritonitis and Healing of  
Fistula A S G Phil 971 568

The author gives in detail the handling of a case of postoperative obstruction and the performing of an enterostomy.

In the majority of cases the obstruction occurs during the first days following operation. In obstruction of the small intestine the immediate danger of toxæmia from perforation and peritonitis.

After abdominal operations there is usually stasis for twenty-four hours which acts as a protective measure. Emetics are given the day after operation. If there is no relief lavage lavages hypodermic injections of pituitin or enemas given during the second night and the day. If these do not bring relief it is concluded that the obstruction is complete. The patient vomits and is toxic. On the evening of the third day or the morning of the fourth he is taken to the operating room and the incision opened. If there is general peritonitis an enterostomy is made without exploration. If there is no peritonitis exploration is made and the cause which is usually an adhesion is removed then of course enterostomy is not necessary. If operation is delayed until late in the fourth day toxic paresis may complicate the existing conditions.

In early operation on the incision is opened in line a second incision may be divisible. A low lying loop of distended bowel is brought up as a segment freed of gases or fluids and controlled by rubber cover d forceps above and below. At a point opposite the mesentery a silk purse string suture with a diameter of about half an inch is applied. A perforation of the bowel is made in the center with a knife or cautery and a No. 10 catheter is inserted vertically into the intestine. Two successive purse strings may be used by the Stamm-Kader method or that of Witzel depending on the catheter into the wall and suturing the folds for a distance of one and four inches. For curvature and to promote healing the author passes the catheter through the perforation and sutures and for fixation includes the parietal peritoneum with omentum and at least three sutures.

The loop of bowel used may be high in the intestinal tract leaving but a small mouth for nutrition. In this case it is necessary to institute rectal feeding and saline infusions until the diseases subsides.

A fistula may occur at the point of enterostomy if it is made without the protection of the omentum the omental graft furnishes granulation tissue to aid in the closure. If a fistula occurs it may be closed by the Do v d P lister method by inserting through it into the intestine an oblong button held by threads in the eyes or through a perforation; the obturator which holds it up against the wall of the bowel at the point of leakage the threads are then inserted through a slit button on the skin side of the fistula.

When granulations form the threads are cut and the rubber button passes through the intestine.

C A Bowe

## GASTRO INTESTINAL TRACT

Bod s A C Tuberculosis of the Stomach with  
Rupture of a Cyst of Multiple Tuberculosis  
Uice s S G Gv C Obi 97 49

The author reviews the entire literature on the subject given a bibliography. He reports a case and reaches the following general conclusions.

1 Little was known of gastric tuberculosis before the middle of the nineteenth century.

2 Gastric tuberculosis is now practically the most common and microscopic appearance as tuberculous lesions of the intestines.

3 A specific reason for the relative immunity of the stomach to tuberculosis still remains unknown.

4 The gastric juice appears to have a very slight effect on the tubercle bacillus unless the contact extends over a period of at least twelve hours.

5 It is possible to produce gastric tuberculosis experimentally.

6 The method of infection is often difficult to determine.

7 The theory that gastric tuberculosis is secondary to intestinal tuberculosis has been disproved.

8 About half of the cases reported as gastric tuberculosis should be considered as doubtful or rejected.

9 Adults are affected more often than children the ratio being about 3 to 1.

10 Males are affected more often than females the ratio being about 2 to 1.

Ulceration predominates in the pylorus and probably causes about 80 per cent of the former and 85 per cent of the latter.

11 The less curvature the most frequent site of the ulcer or ulcer in the pyloric area the pylorus in the probability of combination of the pyloric and pyloric.

12 In tuberculosis of other organs a localized gastric tube ulceration is the first place clinically followed by the intestine.

13 No case of tuberculosis of the stomach has been absolutely proved to be primary in the stomach.

CLWARD L. COOPER

Ca man R D R ntg n D gno i of Con current  
Gastric and Duodenal Ulcer 1m J R 1g 1  
97 55

The author calls attention to the frequent concurrence of gastric and duodenal ulcers and the possibility of discovering both conditions in a given instance with the roentgen ray. Of 16 patients found at operation in the Mayo Clinic during 1916 to have both a duodenal ulcer and the condition diagnosed before the operation by the roentgen

examination The presence of a niche in the gastric contour which is pathognomonic of gastric ulcer and either a coincident definite and constant bulbar deformity or the combination of gastric hyperperistalsis with a six hour retention which are safely diagnostic of duodenal ulcer indicate the existence of a double lesion In some cases definite signs of one or the other condition are lacking and findings common to either lesion alone may render correct interpretation extremely difficult

Case histories of two typical cases with roentgen photographs are given and several other cases are illustrated In view of the fact that a purely clinical diagnosis is obviously not feasible in such cases the roentgen examination must be depended on largely in establishing the presence of the condition

ADOLPH HARTUNG

**Castex M R Syphilis in the Etiology of Gastric and Duodenal Ulcer** (La sífilis en la etiología de las úlceras gástricas y duodenales) *Prensa méd arg* 1917 14 194

Castex says that modern authors give little heed to lues in the etiology of gastric and duodenal ulcer Within the past few years he has had the occasion of observing certain cases of gastric and duodenal ulcer and has become convinced that the larger percentage of gastroduodenal ulcers have a syphilitic etiology The clinical histories of these cases are given and generally show that the ulceration yields to an antisyphilitic medication The author agrees that a causal treatment is the only one capable of effecting a radical cure of gastroduodenal ulcer

W A BRENNAN

**Rachford B A Pyloric Stenosis in Infancy** *Arch Pediat* 1917 XXXIV 803

Rachford reports operations for pyloric stenosis on three infants between the third and seventh weeks after birth and makes certain deductions as to the etiology of this condition

In the first case a gastro enterostomy was done the pylorus was not explored because of the precarious condition of the infant In the other two a Rammstedt operation was performed in this the circular fibers of the pylorus were severed All three cases recovered At seven and a half months the second case died from an enlarged thymus as demonstrated at autopsy The third case later suffered from thymic disease which disappeared under X ray treatment

Palmer in a recent paper called attention to the frequent association of enlarged thymus and pyloric stenosis

Examination of the second and third cases showed that following the Rammstedt operation the pylorus functionates normally and it is the author's belief that it is also much safer and more simple than the gastro enterostomy operation His observation is that in the majority of cases pyloric stenosis in infancy is due to an increase of the circular muscular fibers due to excessive muscular

action of some unknown cause and is not congenital as after the Rammstedt operation the hypertrophied muscle entirely disappeared in a few months

The term congenital hyperplastic or hypertrophic stenosis is unwarranted in cases such as these His experience leads him to conclude also that a large percentage of these cases get well under medical treatment if by this treatment the gastric and pyloric irritation is removed

I L BISHKOW

**Apfel H Intussusception Its Early Recognition**

*J Pediat* 1917 XXIV 781

In numerous cases cited from the literature it was found that those cases of intussusception which recovered were operated upon within forty eight hours from the time of appearance of symptoms Cases operated upon in the first twenty four hours gave a mortality of 10 per cent while the average was 50 per cent

Wallis says I have long been of the opinion that methods for reducing the intussusception such as gas air etc should not be attempted and should not be taught to students

The author makes a plea for early operation in this distinctly surgical lesion as the mortality in the exploratory operation is practically nil as compared to the high rate when one waits for the appearance of the classic tumor Too long a delay attempting mechanical reduction gives time for swelling and oedema for adhesions to form and for perforation and peritonitis to take place

In an infant with suspicious paroxysmal vomiting and pain frequent examinations should be made

The author reports a case in an infant 9 months old There was a previous history of pertussis but no other illness until eleven o'clock on the night of the attack when vomiting started and continued repeatedly until two o'clock This ceased after the mother administered an enema of soap suds Two hours later the vomiting recommenced an enema had no effect The child continued to have paroxysms of pain and vomiting The mother attributed the sickness to the feedings No fever was present the pulse rate was not increased there was slight rigidity of the neck and few râles present

Differential diagnosis suggested (1) acute intestinal obstruction no diarrhoea was present (2) acute gastritis (3) meningitis (4) acute appendicitis

During the vomiting paroxysm two peristaltic waves were noted one in the lower abdomen the other in the upper There was no tumor No blood was passed until just before the operation An ileocecal intussusception was found which was reduced without difficulty and the child made a rapid recovery Operation was performed nine hours after the onset of symptoms C A BOWERS

**Jackson W R Diverticulitis of the Cæcum**

*N Y M J* 1917 CVI 838

The author states that diverticula of the intestines are both congenital and acquired The



sigmoid is more often affected while diverticulum of the small intestine Meckel's diverticulum is rare. Multiple and small diverticula are often seen in the descending colon and sigmoid.

Diverticula vary in size from a grain of wheat to a hazelnut or larger and they may contain concretions and fecal matter. They occur in the old more often than in the young and are prone to inflammation like the appendix.

The most frequent cause of the acquired type is constipation in patients whose intestines have markedly weak spots where the vessels penetrate its wall. Obesity appears to be a causative factor also.

The presence of diverticula may lead to obstruction, pocketing, leucine inflammation, gangrene, ulceration, perforation, escrocolic fistula and thrombosis. Diverticulum of the caecum when inflamed will produce symptoms of appendicitis and it is impossible to differentiate it.

Chronic diverticulitis may become a focus of an extensive fibrous area or fibromatosis resembling carcinoma and often is diagnosed as such. Pain, tenderness, rigidity of the abdominal muscles, constipation, tympany, nausea, vomiting, fever, swelling and leucocytosis constitute the syndrome of diverticulitis.

The following conditions are to be differentiated from diverticulitis: Left-sided appendicitis, tuberculous sigmoiditis, dysentery, leucine actinomycotic and catarrhal sigmoiditis, pelvic inflammatory disease, carcinoma of the sigmoid.

Usually the findings in colon diverticulum are very striking and positive. The case reported was a diverticulum of the caecum inflamed and gangrenous and was the size of an apple measuring three inches in diameter.

Speid H. Hæmaturia in Appendicitis. *Cl. Cl. S. 97, 9.*

The causes of appendicular hæmaturia may be briefly outlined as follows:

(1) Local (a) Interureteritis in the appendiceal area, hyperæmia of mucosa with blood leakage into the urinary stream. (b) Interureteritis from direct extension of the appendicitis chronically dependent to the ureter or ulcerated into the ureter by an abscess or intense neighboring inflammation. (c) Pericystitis of the appendix near the bladder wall. Same pathology as (a). (d) True cystitis from extension as in (b).

General dependent on the appendicular inflammation: (a) Septic foci in kidney, ureter, bladder or prostate. (b) to ic hæmaturia. (c) Lighting up of old urethritis or cystitis by cutaneous febrile attack.

Any of these causes may act. The author believes that the majority of the instances of bloody urine in appendicitis can be traced to the local peritonitis and true ureteritis. Most of the patients reported were not intensely toxic. Only one had suffered from recent urethritis and the appendices were mostly deep and adherent over the ureteral course. Several

patients had masses of abscess or inflammation palpable through the rectum, some with an appendix adherent to the bladder wall but all without hæmaturia. Not one of the series of seven patients gave evidence of epidemic kidney infarcts and in one cystoscopically examined the bladder mucosa was normal. The prompt recovery after appendectomy proves rather conclusively that local ureteritis is the cause of most of these attacks of hæmaturia accompanying appendicitis.

The diagnosis must consider of course kidney and ureteral stone and new growths, cystitis and pericystitis, abscess, rupture into the bladder stone and new growths in the bladder as well as prostatic seminal and urethral lesions. Cystoscopy is of great help. I. S. KOLL.

Willits E. K. and Jud H. M. I. Report of 44 Appendicitis Operations in Children Under Five Years of Age. *Cl. St. J. Med. 19*  
444

The following deductions were made from 44 operations of appendicitis in children:

1. Delayed operation leads to abscess in the great majority of cases.

2. Charters are detrimental in nearly all cases.

3. More rapid recovery occurs when the appendix is removed in abscess cases.

The authors believe that the peritoneum of the child is more resistant to infection than that of the adult. Of the 44 cases operated upon, 4 had abscess formation while 40 of the catarrhal. Complications and fatality could be avoided by early operations.

Rupture of the appendix occurred in the following sequence: 15 per cent when operated upon at the end of the first day, 50 per cent when operated upon at the end of the second day, 5 per cent when operated upon at the end of the third day, 15 per cent when operated upon at the end of the fourth day. For the most part the patients in the first forty-eight hours for the case operated upon in the early stage showed small perforations, limited pus formation and good general condition.

Early abscess formation is due to anatomical development of the child, manifested by the following:

1. The appendix is located higher up in the abdominal cavity, giving a larger peritonitis.

2. The opening into the accumulation of pus is oftenally large, putting the traction of feces and infection of the material.

3. The abundance of lymphoid tissue predisposes to metastatic infection from tonsils, enteritis and enteritis.

4. The appendix is longer and the mesoappendix is shorter which favors kinking and calculatory disturbances.

The symptoms in this series were deceptive because they did not supply an index of the seriousness of the pathologic conditions and thus slight pain and tenderness were overlooked. At

first the pain was general and as a rule became localized later. Rigidity was found at times in the right upper rectus region more frequently in the lower right again in the lumbar region and only twice in the left lower rectus region. Vomiting was not always present.

The authors conclude that localized rigidity in any part of a child's abdomen is likely to be appendicitis. And in the words of Pfaunder the problem is not when to operate but when not to operate.

M A BERNSTEIN

Williamson G M. Carcinoma of the Colon.  
*J. Lancet* 1917 xxvii 02

The author restates the etiology and most frequent pathology of carcinoma of the colon and cites four cases which upon operation proved to be such. In all these cases the symptoms were vague and indefinite consisting of some gastric disturbance, paroxysmal or persistent abdominal pain, constipation or diarrhoea in three of the cases the diagnosis was first made on the appearance of a palpable tumor.

The prognosis is good for cases in which early diagnosis and proper surgical interference is made as metastases and involvement of other structures occurs late.

H H FREILICH

Yeomans F C. Adenomyoma of the Rectum.  
*Tr. 1st Proct. Soc. New York* 1917 June

The following case appears to be unique.

A woman aged 37 the mother of two healthy children was seen in consultation in September 1916 for rectal hemorrhage and pain. The important points of her history were pulmonary tuberculosis contracted six years before and cured, painful menses the flow diminishing, habitual constipation until three years ago. Then occurred an attack of diarrhoea lasting five months and thereafter intermittent attacks. For the previous year ten or twelve movements occurred daily containing blood and mucus. Pain over the sacrum was aggravated at the menstrual period and with the diarrhoea.

Physical examination showed the patient to be pale but well nourished, weight 142 pounds. A Wassermann test of the blood was negative. Urine was normal. Chest and abdomen were negative.

A rectal examination was made. Three and one half inches up on the anterior rectal wall just above the cervix uteri was a hard fixed fairly tender mass the limits of which could not be defined. The proctoscope showed a superficial ulceration the size of a quarter at the rectosigmoidal juncture. This was red clean and bled freely on contact. Vaginal examination was negative except that in the posterior fornix was felt the same mass apparently the size of a guinea hen's egg.

The patient was operated upon in September 1917. A left rectus incision was made. No growths were found in the liver or other abdominal viscera. The tumor was located in the anterior wall of the

sigmoid just above its juncture with the rectum and extended down two inches on the rectum, cervix uteri and posterior vaginal wall. The lower third of the sigmoid was mobilized including a small portion of the posterior wall of the uterus and its cervix and the superior hemorrhoidal artery was ligated. Then the abdominal wound was closed and in a lithotomy position the operation was completed by extirpation of the rectum including the posterior vaginal fornix. The patient reacted promptly from the immediate shock of the operation. The bowels acted on the third day and union of the sigmoid to the perineal skin was primary except at one spot which soon granulated. The patient left the hospital in three and a half weeks and is now well having normal anal sensibility for bowel actions which occur once or twice daily with normal control. Vaginal and rectal examinations show no abnormalities.

Interest in this and similar tumors in this location centers in

1. Origin. Suggested origins are uterine mucosa, Wolffian ducts and embryonic rests persisting from the fusion of Mueller's ducts. The author's case was clinically an intestinal growth. Ewing after careful study reported the most likely origin is from superfluous material derived from that portion of the lower gut which continues on in the embryo to the bladder and allantois and which normally atrophies. Persistence of a portion of this segment would furnish a source of smooth muscle and intestinal epithelium. He does not think the tumor is of Muellerian origin.

2. Symptoms. Varying with the development and site of the growth the symptoms would be obstructive, dysenteric or neuralgic.

3. Diagnosis. A tumor imparts a rather characteristic feel. It is apt to be mistaken for an infiltrating inoperable malignant growth.

4. Prognosis. Histologically it is benign. Clinically it may be malignant from the symptoms to which it gives rise or may actually undergo malignant change.

5. Treatment. Surgical removal should take place at the earliest date possible. The abdominal route is preferable but if the tumor is at the recto-sigmoidal juncture a combined operation will probably be necessary for its removal as was successfully done in the author's case.

Drew D. Procidencia Recti and Its Treatment.  
*Lancet* Lond. 1917 cxviii 790

The essential condition for the occurrence of procidentia in the absence of any condition which drags or presses the bowel down appears to be undue mobility of the rectum either as a congenital defect or from stretching of the supporting structures.

Many operative procedures have been practiced for the cure of procidentia in the adult and from their number and variation apart from definite evidence of failure it is suggestive that none of them

are very reliable in effecting a cure. Such a method as scooping the mucous membrane with the cautery or with a cauterizing rod is in no way curative and only causes additional suffering.

The inveterate cases are best treated by drawing down the prolapse to the fullest extent, excising a wide flap of the mucous membrane, tending from the anal margin to the apex of the prolapse, and suturing the edges with catgut suture. The haemorrhoids in the anal tumours that as they are tied the anal wall pleated. The prolapsois then pushed back and the bowels relaxed by enema for a few days with precaution against straining. Hence they are allowed to act. This operation which is easily performed and entirely devoid of risk is uniformly successful.

E. R. D. C. R. E.

### LIVER PANCREAS AND SPLEEN

G. B. R. The Treatment of Tumor at the Neck Conditions in Hepatic Disease. D. I. I. d. H. I. I. 97. L. N.

Roberts reviews the treatment of biliary calculi, yellow trophic, especially surgical treatment. He points out that operation is dangerous to life even if skillfully performed. Biliary colic may subside spontaneously. The operation does not always succeed in relieving the patient from pain and other symptoms.

If operation is done it should be in an interval between attacks and not during an attack. If acute attacks are frequent, each time becoming more complex, the patient's decreased vitality and depleted condition usually urges him to accept the risk of an operation. Also, in inflammatory symptom point to a localized purulent collection, the risk of a general infection is urgent and cat on for operation.

W. A. BREW.

W. I. U. S. A. Suction Bulb Act on of the Gall Bladder. S. G. C. Y. Obi. 97. 5.

Until recently the gall bladder was universally considered a biliary reservoir. The relative disposition between the quantity of bile secreted and the capacity of the gall bladder however made such theory untenable.

In an experiment on a gall bladder case the author noted that the liver's respiratory excursions produced a mechanical passive contraction and relaxation of the gall bladder. He noticed alteration in the collapse of the fundus and a descent of the indented area corresponding to the respiratory movement of the liver. This was easily proved by the introduction of a tube into the gall bladder of a dead animal connecting it with a mercurial manometer.

In order to register these pressure changes and normal intra-abdominal conditions as possible the tube from the gall bladder may be carried through the rectum and anus and then attached to the recording apparatus. The gall bladder and the liver duct are ranged in exactly the same manner

as a stomach tube with its bulb. As there takes place an alternate contraction and relaxation of the gall bladder it is reasonable to assume that the same physiological phenomena occur in the bile outlet as in the manipulation of the stomach tube. During inspiration there is a decided increased pressure of the gall bladder and undoubtedly pressure in the common duct is greater than in the bladder. The bile is forced into the duct. As the least resistance of the flow in the direction of the duodenum the added impetus given by the emptying of the gall bladder undoubtedly enhances the current of the direction.

During expiration the intracystic pressure is greatly lessened and in fact is negative and undoubtedly the pressure in the common duct is greater than in the bladder consequently the bile flows into the ac.

E. VARD L. C. NEILL.

Col. L. G. Differential Diagnosis of Right Renal and Gall Bladder Lithiasis. I. I. I. M. J. 97. 946.

The author strongly emphasizes the importance of differentiating between these two conditions noting the embryological position in which the surgon's place in the organ having accepted an incomplete and obvious finding by the oenologist. He states that approximately 20 per cent of gall stones are of sufficient density to cast a shadow in right kidney plate and the 5 to 6 per cent contain calcium phosphate in sufficiently extensive and uniform degree to end result in a diagnosis difficult.

Colic is the difficulty in differentiating with two amplification of a right renal calculus through a gall bladder calculus.

A series of eight pairs of plates is shown each illustrating a right renal and gall bladder calculus respectively. The various physical characteristics of the two conditions are as follows: (a) in the calculus (1) very dense (2) usually single (3) of uniform density (4) if multiple irregular shape conforming to the principal calices (5) if multiple varying in size and shape (6) with irregularly rounded (7) frequently branching (8) seldom lying in position between examination (b) in the calculus (1) soft or dense (2) usually multiple (3) of variable density (4) if multiple conforming to the shape of the distal end of the gall bladder (5) if multiple relatively the same in size and shape (6) with surface usually flat or faceted (7) never branching (8) frequently changing in position between examination.

Coleman notes in addition several other points that are extremely helpful in changing the conclusion. The shadows of renal calculi are sharper and smaller when the plate is posterior and the tubular or biliary shadow is sharper and smaller when made with the plate anterior and the tubular posterior. Plates made and viewed stereoscopically place the biliary shadows in the anterior plane and the renal shadows in the posterior plane. When plates are made in the latter direct oblique biliary cal-

culi shadows are seen in the anterior plane in front of the bodies of the vertebrae while the renal shadows are seen in the posterior plane partially obscured by the bodies of the vertebrae. Any standard accurate method of localization will demonstrate the relation of either calculi to the anterior and posterior abdominal walls.

In conclusion the author mentions the use of pyelography to demonstrate the anatomical situation of a renal or ureteral calculus. He also recommends the use of a barium meal to demonstrate the anatomical situation of biliary calculus and to elicit the indirect evidence of this condition such as spasm, adhesions and distortion of the cap. Adhesions are of as great clinical significance in the diagnosis as the detection of the biliary calculus itself.

W. HOWARD DICKSON

**Rosenbloom, J. Certain Factors in the Etiology of Gall Stones on the Basis of Their Chemical Composition.** *J. Im. M. Ass.* 1917 LVII 1765

After a brief resume of the causation of gall stones in general the author gives the results in tabulated form of the analysis of the gall stones removed in 14 cases of diagnosed cholelithiasis. A careful history as to previous infectious disease was ascertained in each instance. In every case where there was a history of previous infection the gall stones removed were composed of calcium salts while in those cases with no history of an infectious disease the stones were composed of cholesterol.

The author's report confirms the previous reports of both Mignat and Rosenow who have shown the relationship of infection to the formation of gall stones, namely that cholesterol stones have no relation to previous infection while calcium stones usually follow upon a previous or an existing infection.

H. B. MATTHEWS

**Waller, E. Idiopathic Choledochus Cyst.** *Ann. Surg. Phil.* 1917 LXVI 446

Waller reports the case of severe cystic dilatation of the common duct in a ten year old girl with a history of recurrent attacks of abdominal pain about once a year since the age of three. Three days before her admission to the hospital there was a sudden onset of severe pain on the right side of the abdomen accompanied by vomiting. A mass about the size of a fist was found just below the right costal margin. There was slight icterus present.

Upon opening the abdomen the gall bladder was found to be of normal size and appearance and contained no stones. The tumor which had been palpated before operation was found in the retroperitoneal tissues. At first it was thought to be a hydronephrosis but upon exposure no connection was found with the right kidney. The thin walled cyst contained about 50 ccm of dark clear bile and the gall bladder emptied into the upper part of the cyst. At the lower pole of the cyst a small opening communicated with the retroduodenal

portion of the common duct. The cyst was apparently due to an enormous dilatation of the supraduodenal portion of the common duct. An anastomosis was made between the cyst and the duodenum. The patient recovered and was discharged about four weeks after operation.

The cyst had developed from the middle and upper part of the common duct. None of the usual causes of obstruction of the common duct in the form of stone, tumor, stricture or pancreatitis were found to exist.

The total number of cases collected by the author including his own is 35, in none of which the disease could be diagnosed clinically and in most of the cases not even at the operation. In one additional case was an anastomosis made primarily between the cyst and the intestine.

The condition is dependent upon a congenital anomaly in the course of the common duct. In most cases the cyst attained the size of a child's or a man's head, holding from 4 to 5 litres of fluid. The cyst usually lay below the liver, closely pressed below its lower surface. In some cases it had extended across the median line and even down as far as the pelvis, pushing the duodenum to the left. The biliary tract above the cyst showed but little dilatation but the liver in the far advanced cases exhibited the appearance when enlarged of a biliary cirrhosis.

The principal symptoms produced by a choledochus cyst are icterus, tumor and pain. The tumor has usually been mistaken for an echinococcus, pancreatic or liver cyst. Suspicion should be aroused during the first two decades of life, especially in females, when a large cystic alternating swelling in the right hypochondriac region is found more fixed than a distended gall bladder and associated with icterus, fever and more or less violent pain.

In 1 of 30 cases in which operative measures were employed the cyst was sutured to the abdominal wall. All of these cases ended fatally with one exception. The patient died three years later of other causes. It appears that the anastomosis between the cyst and the duodenum is the only rational therapeutic means and ought to be done primarily, the danger of infection of the biliary tract is not great.

The article concludes with a list of all published cases and a complete bibliography.

D. N. EISENDRATH

**Eisendrath, D. N. Recurrence After Operations on the Biliary Passages.** *J. Im. M. A.* 1917 LXI 1752

The author calls attention to the causes of recurrence in operations on the biliary passages. These recurrences may be (1) true and (2) false.

True recurrences are possible and are no doubt of frequent occurrence. Reformation of stones after cholecystostomy by the persistence or recrudescence of infection lodged in the crypts or glands of Luschka has been proven beyond any doubt.

Whether or not true reformation of calculi takes place in the common or hepatic ducts is not known. Certainly there are well authenticated cases of intrahepatic cholelithiasis. Cases that present themselves for second operation with the presence of calculi in the gall bladder or its ducts when none were found at the primary operation undoubtedly are cases due to the descent of intrahepatic calculi.

False recurrences may be tabulated as follows: (1) overlooked calculi (2) adhesions (3) chronic pancreatitis (4) peristalsis or recurrence of original infection (5) strictures (6) fistulae (7) faulty technique (8) in disposition of the gall bladder (9) cystic duct (10) incorrect diagnosis as for instance tuberculosis of the pancreas (11) tumors (12) coexistence of two conditions such as enteroliths (13) contraction of the ampulla of Vater and (14) cancer of the head of the pancreas. Of all these possibilities of infection overlooked calculi and herniation of the pancreas constitute the majority of the cases of recurrence. Undoubtedly the peristalsis of infection does overlooked calculi constitute the most common cause of recurrence. Intestinal cholelithiasis must certainly play a very important rôle in the constitution of uric acids if such a condition exists the futility of locating small calculus lodged in the hepatic duct is at once apparent. Faulty technique no doubt is possible for many recurrences. When only cholecystectomy is performed the bladder for the drainage is placed in the fundus had better be dropped back and not anchored to the parietal peritoneum. The cystic duct should be removed along with the common duct so if left long its distal end becomes distended from a gall bladder which may and often does contain calculi.

The author gives in detail his technique for choledochostomy as produced by the method of excellent block and histologic sketches. The drainage tube from the common duct as used by the author is the same as originally recommended by Kehr and Decker.

There is appended a list of 3 cases of second operation for recurrences performed by the author.

H. B. MATTHE

S. I. J. T. Acquired Syphilis of the Pancreas  
1 J. S. 97 59

The author calls attention to the fact that syphilis of the pancreas is not always congenital but may be acquired with the characteristic symptoms of dyspepsia, wasting and fatty stools, often jaundice if the head of the pancreas is involved, tenderness in the region of the pancreas and evidence of syphilis in other organs. He cites an interesting case of a trained nurse who first consulted him for pain and tenderness in the region of the pylorus or pancreas. She had nausea, some vomiting, loss of weight and pain in the abdomen, especially at the time of bowel movements. Stomach analysis was negative except for some occult blood.

The appetite was good, burning and pain in the stomach was relieved by food. There were also present some pelvic conditions such as backache, leucorrhœa and irregular menstruation.

An exploratory laparotomy was performed which failed to reveal the cause of the pain. There was evidence of previous pelvic peritonitis; the appendix was bound down and retrocaecal and was removed. The head of the pancreas at that time was found quite hard and somewhat enlarged. The patient apparently improved for five months then became gradually worse again; this time showing some jaundice. As there was thought possible that cholangitis was present some common duct and a second operation was performed. The gall bladder emptied poorly and the pancreas was found larger than at the first operation and still hard. Adenitis was therefore made of the histological pancreaticitis with cholangitis. The gall bladder was drained at this operation.

Six months later the symptom recurred as severely as the first. It was then decided that the gallbladder was the cause of the trouble. A syphilis test was negative. The patient was given a course of treatment with iodine and mercury. The patient was given a course of treatment with iodine and mercury. The patient was given a course of treatment with iodine and mercury.

The author gives the outcome of the Wassermann tests, but in all observations the results were negative. The patient was given a course of treatment with iodine and mercury.

L. F. T. M. R. P. of the Splenic  
N. C. M. R. O. E. Y. (1) J. T. M. T. J. D. L.  
1. T. J. T. M. G. ) P. T. P.  
1. 7. P. 1. 3.

The patient in the case reported by L. F. T. fell from an obstruction. He got up and walked a few steps but was attacked by sharp pains in the left thoracic base region and was admitted to the hospital. On admission his pulse was slightly weakened and the abdomen was enlarged except just beneath the left costal border where there was some slight resistance. The pain continued and became more violent. Later his appearance grew worse and the abdomen became rigid. A diagnosis of perforated hemorrhage probably due to rupture of the spleen was made and the patient was operated upon.

The abdomen was full of blood. The patient was easily positioned to a supine position to detect parts by rupture perpendicular to the major axis. The peritoneal cavity was ligated and the splenic cavity closed out. Drainage was established into the peritoneal cavity. The postoperative course was simple. Examination showed that the rupture was at the union of the anterior and middle thirds of the capsule, as largely denuded for an extent of about 3 cm.

The author thinks that this rupture occurred in

two stages first that there was a parenchymal rupture with intrasplenic hemorrhage and formation of a subcapsular hematoma then upon an effort capsular rupture and peritoneal inundation

W A BRENNAN

**Ganguli H K Death from Rupture of the Spleen Twenty Five Days After Abdominal Injuries and Apparent Recovery** *Indian M G* 1917 lii 399

The patient showed three incised wound small and slight in the leg hand and head Two small ecchymotic spots were found over the pit of the stomach and to right of the umbilicus The abdomen especially about the ecchymosed spots was very tender distended and in intense abdominal pain was present Cardinal symptoms of shock were noted

The symptoms of shock subsided and symptoms of peritonitis set in The abdominal pain diminished but the patient complained of a swelling in the splenic region tender to the touch where he had been struck with a stick

By the nineteenth day in the hospital all symptoms subsided and he was discharged Nine days later he experienced sudden and severe abdominal pain and died soon afterward

Postmortem examination revealed two to three pints of blood in the abdomen showing a rupture of the spleen at the hilus The spleen was softened A history of recent fever led the author to believe that was the cause of the splenic softening which favored rupture when the organ was traumatized He believes that at the time of injury the hemorrhage must have been within the spleen and ruptured into the abdominal cavity on the day death occurred

I E BRISKOW

### MISCELLANEOUS

**Eastman J R Abdominal Wounds in War** *J Indiana St M* 1ss 1917 v 417

The present war has witnessed important developments in the treatment of gunshot wound of the abdomen The old plan of rest and opium still has many advocates but the weight of opinion is in favor of immediate operation wherever possible A skilled operator trained assistants a sufficient armamentarium and an aseptic environment are all necessary Furthermore before celiotomy is performed the following points must be considered diagnosis length and character of transportation to bring the patient to the place of operation the time interval between the injury and operation the time the patient will be able to stay at the place of operation before evacuation to a base and also the question whether or not time can be given to operation without neglect of the other wound

The author classifies gunshot wounds of the abdomen into two types the first includes abdominal wounds down to and through the peritoneum

but without injury to the viscera and the second or more serious type includes all injuries to the abdominal organs Attention is called to the fact that a distended hollow viscus is apt to be ruptured by the impact of a bullet on some distant part of the body for example the rupture of a full stomach by the impact of a bullet on the pelvis

The general symptomatology is practically as in civil life Injuries of the stomach are of more frequent occurrence Attention is called to the phenomenon that the outpouring of gastric contents is usually into the lesser peritoneal cavity even though both anterior and posterior perforations occur Little value is attached to the symptoms of hæmatemesi as it is rarely present The small intestine of all hollow organs is the most frequently perforated The injuries are usually multiple varying from small round perforations to complete division of the gut The teaching that a mucous membrane plug is forced into the wound of the muscularis and serosa and thus prevents the extrusion of intestinal contents into the peritoneal cavity with subsequent peritonitis is false

In small perforations a single purse string suture of silk or linen is used while in ragged long wounds a running stitch is best A lateral anastomosis is preferred in most instances to the end to end method Infection from injury and escape of contents from the large gut are more serious than when the small intestine is perforated Extraperitoneal wounds of the rectum nearly always recover eventually but intraperitoneal injuries are very serious

Owing to their small size the kidneys are not very frequently wounded and when this occurs they are usually accompanied by wounds of the small intestine The injury to the kidney itself should be treated conservatively Extensive hemorrhage occasionally necessitates a nephrectomy but as a rule the rest and opium treatment is the best Intraperitoneal wounds of the bladder require abdominal operation where this is not possible a retention catheter

The chief sequel to wounds of the liver is hemorrhage This often subsides spontaneously or if necessary may be controlled by means of packing Suturing usually produces additional hemorrhage Wounds of the spleen are rare and the hemorrhages as a rule are not severe Pancreas wounds are usually complicated and offer a very bad prognosis

R B BETTMAN

**Migraine Penetrating and Non Penetrating Abdominal Wounds** (Observations de phés d'abdomen pénétrante et de non pénétrantes) *Bull et mém Soc de chir de Pa* 1917 xliii 1832

The cases reported include 35 laparotomies 10 Murphy operations 8 wounds operations not advised 14 inoperable wounds 31 non penetrating wounds 1 secondary operation making a total of 99 cases The non penetration in some cases was only determined after laparotomy

The 10 cases in which a Murphy operation was

done all ended fatally. The operation was done relatively early and without signs of peritonitis in 4 cases. It was done with signs of peritonitis in 6 cases.

Short history of the 35 laparotomies is given. These resulted as follows: 8 laparotomies for simple non-visceral penetrating wounds, 4 a 5 d a t h 3 recoveries, 2 laparotomies for intestinal lesions gave 15 d a t h s recoveries, 5 laparotomies for multiple wounds gave 5 d a t h s no recoveries.

Five wounds of the leg gave 4 d a t h s 4 wounds of the small intestine gave 4 deaths, 7 wounds of the large intestine gave 4 deaths. According to the history the interval between injury and operation varied from 3 hours to about 12 hours.

W A B

Ja kson R W Adult Rectal Polypse Two  
Ces and a Contrast T A I o l l S  
Ne Y k 9 7 J n

Too few papers have appeared from the pens of proctologists on the major types of rectal polyps. The subject deserves more attention. Two sharply contrasting cases bring out the author's views on the therapy.

The first case was operated upon four times. Extensive regional cauterization resulting in recurrences post-proctectomy is being inquired upon. Amputation results satisfactorily as regards anal polyps, but leaving a very large polyp or agnathic hernia which was promptly cured by cul-de-sac closure with sigmoidectomy and ventral suspension.

## SURGERY OF THE EXTREMITIES

### DISEASES OF THE BONES JOINTS MUSCLES TENDONS CONDITIONS COMMONLY FOUND IN THE EXTREMITIES

Hoffman G Chronic Bone Suppuration D t  
ch d H ch l 9 7 l n No

Hoffman refers to the difficulty in treatment of chronic osseous suppurations following gunshot fractures. The cause is due to some critically covered with granulation tissue but enclosing sequestra or free bone fragments. These free fragments cause constant irritation of the granulation process and give rise to active secretion of pus and fistulous tracts.

Hoffman describes the diagnostic of osteogenic graphic diagnosis. He has used Holzkecht's method in many cases, especially for the best diagnosis of the character of the bone obtained from stereoscopic plates. These give the best indication of the route to be followed in order to reach the focus of suppuration in the bone.

Experience has shown that equine tetanus can be moved physiologically, a Klipp experiment. The author holds that the bone chips and sequester

The second and less favorable case was promptly cured by one operation identical with the final operation in the first case.

The pelvic floor is supported depend on the sufficiency of four factors. The pelvic fascia is a reliable strength and attachments vary with the depth of the peritoneal cul-de-sac. The strength of the levators and the rump lift is not a constant thing. The anal adagiloric may be guarded by sphincter prul muscles, a pelvicum and levators, however imperfect though the area or atrophy. An amount of adipose padding about these structures is essential but it is lacking. The rectum has imperfect support above the pelvic floor and its anterior wall non at all.

Prilapse begins here from external pressure or begins below spinal protrusion but virtually the prolapse contains the anal cul-de-sac. Regional cauterization is inadequate to meet any such faults. Posterior rectopexy does not support the primarily offending part. Amputation removes the troublesome part but does not correct the faulty factors which may all recur. Currence per anum or per vaginam. Cul-de-sac closure though difficult operation goes far toward such correction and suspension help.

The author concludes that the operation of first choice for these prolapses is cul-de-sac closure through the abdomen plus some form of suspension to be followed and supplemented if need be later by amputation or perhaps some plastic work on the elements of the pelvic floor.

na caty covered with granulating tissue, often not always be treated with interference with or injury to the granulating tissue more than a small time. In order to remove the bone which contains it. After this necrotomy there is no limitation in temperature. The lesion is reduced to its natural protection heals and the chronic suppuration of the bone ceases while those cases which the ganglionation or more or less extensive injury or extension is removed proposed to a non-infectious. W A B R

Del m E Calcification in Cns t to W  
T a u m t i m s (D l d l f t t  
a x t m t m d g ) t l d t d t  
p l i l P r 9 6 l

Delore points out that the topography of the bone is a good indicator of the nature of the disease and the consequences of the disease. The attention of the implantation of the traumatic lesions.

In this article Delorme makes the point that the frequency in the various kinds of wounds the ap

proximate time of its appearance and duration its specific characteristics pathogenesis and treatment and the temporary or definite disturbances which it may cause in the functioning of wounded limbs

An examination of 204 radiographs has shown that in lesions of the upper limb osteoporosis occurs in about two fifths and in the lower limb in about one third of the cases

A further examination of 1350 radiographs examined according to the bone attacked shows that in injuries of the radius the proportion of cases of osteoporosis is more than one half In other bones the proportion is even as high as two thirds The details of a large number of cases of upper and lower limb injuries are given

From a general discussion of the subject based on his large experience Delorme finds that the solidity of osteoporotic bones in the wounded is not notably compromised and that osteoporosis is not a counter indication to the orthopedic mobilization of joints

Regarding conditions which offer an obstacle to direct treatment of pseudarthrosis Delorme is not so certain but his present knowledge leads him to recommend either late operation of pseudarthroses after disappearance or evident modification in the osteoporotic process or rather before the appearance of marked osteoporosis when suppuration has ceased because osteoporosis itself may be late

W A BRENNAN

Mori A Osseous Neoformation Consecutive to Multiple and Repeated Contusive Trauma  
(Delle forme formazioni consecutive a traumi multipli e ripetuti) *C d esp d cl*  
Milano 1911 627

In 1911 the author published an article in which he showed that the morphological and histological alterations due to auto contusions as far as studied were limited to the skin and subcutaneous tissues forming the clinical entity known as *edema duro* However if the cutaneous and adipose tissues are those which in the majority of cases feel the modifying effects of contusion this does not exclude the presentation of important modifications in other tissues The author has met some cases of bursitis tenosynovitis and periostitis

Osseous neoformations are the least frequent and their existence is even denied by some In a long experience with industrial accidents the author has seen only three such cases He gives the details of these cases In one there was neoformation of an osteoma after a slight contusion with abrasion of the right leg in an industrial accident The other two cases were in soldiers who showed after simple contusions osseous neoformations at the site of injury

These three cases and some other cases of occupational osteomata which the author quotes from literature confirm his previous statements that cellular dermatitis is not the only clinical and anatomopathologic expression of repeated multiple traumatic contusions but that these mechanical stimuli

can cause other neoformative productions constituted from the connective tissues

The author discusses the pathogenesis of these neoformations and leans towards the metaplasia theory  
W A BRENNAN

Truthe de Lauresson Clinical and Therapeutic Study of Late Bone Infections Consecutive to Gunshot Wounds (Considérations cliniques et thérapeutiques sur les infections tardives des os consécutives aux blessures par projectiles de guerre)  
*Arch de med et pharm mil* Par 1916 LV 59

The author has personally operated upon 350 cases of bone injuries in base hospitals and as a result of this extensive experience he gives the progress and treatment of late infections in bones

He summarizes his observations as follows

1 In gunshot wounds of the bones there are late infections which have the greatest analogy to prolonged osteomyelitis and which can only be considered as a traumatic variety of this prolonged osteomyelitis

2 Clinically such lesions are not marked by any striking symptoms but a simple fistula which leads to a bone much increased in volume the interior of which shows by radiography an abnormal clear zone

3 From the anatomicopathologic point of view the lesions are characterized by a fistulous bone cavity in the center of which the bone tissue is soft and in course of necrosis the periphery shows a zone of rarefying osteitis the whole process is limited by a concentric layer of osteitis which acts as a protection and limits the infection

4 Treatment of the lesions consists of making large openings throughout the cavity and transforming it into an open canal after removal of all diseased bone Further treatment consists in dressings and in energetic treatment of the wound in order to favor cicatrization Recovery is slow but definite it may probably be effected in less time by artificial aseptic filling of the empty cavities  
W A BRENNAN

Taylor K and Davies M Persistence of Bacteria Within Sequestra in Surg Phila 1917  
LVII 522

The authors of the American Red Cross Hospital Paris state that the treatment of the old suppurating fracture resulting from a shell or rifle ball wound offers one of the most difficult problems in the base hospital and that there is probably no other form of injury which withholds from active service such a large number of men for such a long period of time For this reason they have deemed it advisable to publish the incomplete data so far at hand resulting from investigation of the bacterial flora of these wounds These data include observations on the persistence of various bacteria within the wounds and especially within the bone itself the recrudescence of infection following operations on a septic field commonly called a



flare the possible reaction of anaerobic bacteria to this crude culture of infection.

For this study sequestra from a continuous series of second ry operations on suppurating compound fractures were examined. The cases were chiefly fracture of the long bones which had reached the stage of bone sinuses on two instances were completely closed but housed sequestra on X-ray examination.

To determine whether there was any difference between the flora of the wound itself and the flora within the sequestrum the following technique was employed. To determine the flora of the wound the sequestrum was placed in sterile saline solution and well shaken. The resulting emulsion was inoculated into deep agar upon agar plates into anaerobic broth into meat culture medium and into milk. To determine the flora within the sequestrum the sequestrum was removed from the saline emulsion dried and sterilized by being dipped into alcohol and flamed. It was observed that certain organisms were obtained more frequently from the interior of the sequestrum than from the emulsion containing the wound flora. It was noted that each group of organisms was recovered more frequently from the sequestrum than from the wound suggesting a richer flora within the former. On point however is evident and that is the greater incidence of the anaerobic group within the sequestrum. Gas forming anaerobes developed rarely four times as often from the bone than from the wound while spores were present six times more often. In no case were gas producing anaerobes recovered from the wound when not recovered from the sequestrum. The bone itself appears to be the most common site for the persistence of the anaerobic flora.

They state that the persistence of bacteria for several months within the bone is probably due to the mechanical protection afforded by the dense structure of the bone itself for organisms present within its spaces and canaliculi. Furthermore the bacteria are protected from any antiseptic which may be introduced into the wound. The persistence of the organism within the bone is rather than in the soft tissue is probably the cause of the persistence of the sinus and the occurrence of the acute exacerbations of infection or flare after secondary operative procedure. Growth was obtained from sequestra removed from two cases in which the sinus had been completely closed for two weeks or more. This persistence of bacteria however is the necessity of caution in undertaking an early debridement operations such as bone grafting or nerve sutures where asepsis is a primary necessity.

The cases classified as flares are those which showed a rise of temperature within 24 hours of the operation sequestrectomy amounting to one degree or more of fever continuing for 48 hours or longer and associated with a local inflammatory reaction about the wound.

They summarize their work as follows

1. Aerobic or anaerobic bacteria invade the bony substance of nearly all sequestra and remain there as long as the sequestra persist.

2. A foaming spot bearing anaerobic bacilli usually the bacillus aerogenes capsulatus bacillus malignans and matus and bacillus Hibler IX types persists longer within the bone than in the wound about it. They never recurred from the wound when absent in the sequestra. Nests of these anaerobes may persist for some time after the wound is completely closed.

3. Anaerobic bacilli are probably active factors in the integration of sequestra within the wound.

4. Anaerobic bacilli within the dead bone appear to be associated with the occurrence of flares after operations on bones.

5. Flares occur more frequently after sequestrectomy than in the cases where over 100 days old than when the case was under that age.

6. It is probably impossible to kill by antiseptic treatment the bacteria within the dead bone. The object of treatment must be to remove this focus of infection. The sequestra may be extracted by operation or their disappearance hastened by utilizing the oxidant action of acid dressing solution.

The persistence of bacteria within the bone probably explains the infection which often follows bone grafts in old compound fractures and indicates the advisability of postponing that operation as long as a practical time. G. W. H. HENRY.

Brickner W. M. P. in the Arm. Subd. Ito d. Bu. 1914. Further Study of Its Clinical Type. Part I. Study and Treatment. J. A. M. A. 1914. 153.

Brickner considers subdeltoid bursitis to be the most common cause of pain in the arm and sometimes but by no means always also in the shoulder.

He believes that the immediate cause is traumatic usually a squaring of the supraspinatus tendon occasioned by the infraspinatus and the bursa between the two processes and the greater tuberosity. It is the humerus when the arm is abducted although the history of injury or of muscular violence

often unobtainable. Often this injury occurs from a fall on the outstretched arm but more often it occurs from internal violence such as in raising the arm to a rug hanging from a car strap etc. This squaring of the tendon is easily demonstrable at operation on the cadaver. Small fractures of the greater humeral tuberosity are probably also associated with inflammation of the overlying subdeltoid bursa. He believes there is another etiologic factor the associated subscapular dislocation of the humerus and other mineral salts in or on the supraspinatus or the infraspinatus tendon. In his experience the condition occurs only in adults between the ages of twenty and sixty-one. His work has shown that it is neither infectious nor toxic in origin because the specimens removed at operation are both acute and chronic cases have been sterile.

In the 18 cases he has operated upon he has

found the same lesion in the bursa adhesions between its two walls. In most cases he has found no fluid accumulation in the bursa. Probably there is always a serous effusion at the outset but it usually soon disappears. The lime deposit lies under the bursa and not in it or in its walls.

The symptoms are two pain and disability in shoulder movements. The pain is usually referred to the upper arm anteriorly or externally from the level of the deltoid insertion toward or to the elbow. Sometimes it radiates into the forearm hand fingers or neck. Disability of movement may be entirely absent even in chronic cases. The interference with internal rotation may be very great or moderate the patient may be unable to put his hand in his trousers pocket or unable to reach behind his back. External rotation is usually little affected. There is no ankylosis.

In most cases when the patient is examined there is no swelling. There is often to be noted a flattening due to atrophy of the deltoid. The supraspinatus and infraspinatus muscles may also be atrophied. Pressure on the bursa below the tip of the acromion process is sometimes painful but it is usually painless. If the X ray is negative it rather supports the diagnosis.

The author considers Kodman's classification of acute or spasmodic subacute or adherent and chronic or non adherent as unsatisfactory. In his experience the cases present themselves in the forms of acute hyperacute chronic and chronic with exacerbations.

In the treatment his first object is to overcome the adduction disability the spasm if present and thereby the pain. This he does by a simple automatic abduction. He puts the patient to bed supported on several pillows and with his arm raised as far as he can comfortably abduct it. A towel or bandage sling is passed from the wrist or elbow to the head of the bed and this end of the bed raised on blocks or chairs. As he gradually slides down in bed his arm correspondingly goes up. Sometimes the pain disappears within twenty four hours.

Brickner believes that most patients who have subdeltoid bursitis recover under this plan of treatment in bed with automatic abduction or the trouble subsides spontaneously though slowly. He advises operation in the following cases: first the chronic forms with exacerbations second the acute hyperacute and chronic cases in which the automatic abduction in bed fails to restore function and to relieve pain and spasm.

The operation he employs consists in splitting the deltoid raising the outer wall of the bursa from the inner and incising it dividing all adhesions in the bursa incising and retracting the floor of the bursa removing the deposit if extratendinous and suturing any tear in the supraspinatus tendon or incising the tendon wherever indicated by the X ray and excising the deposits with surrounding tendon fibers reuniting the tendon with chromicized catgut if the defect is not too large suturing the floor of

the bursa with a fine running catgut stitch reuniting the interior of the bursa with a thin layer of petrolatum suturing the outer wall of the bursa suturing in layers without drainage the deltoid muscle the deltoid fascia and the skin and abducting the arm in plaster of Paris for a week.

All patients thus operated upon have been promptly relieved of pain and early restored to full activity. In only one patient was there any complication this was a brachial phlebitis which retarded recovery a few weeks. C. W. HOCHREIN.

## FRACTURES AND DISLOCATIONS

Taylor H. L. Fractures of the Neck of the Femur in Children. *N. Y. St. J. Med.* 1917 LVII 508

In addition to the slipped femoral epiphysis in adolescents there occurs with a frequency to demand recognition a fracture of the neck of the femur in children under thirteen of which Taylor reports seven cases. The fracture is a transverse fracture at the base of the neck with an angular displacement in adduction with or without rotation. Taylor proposes the name of hinge fracture since the periosteum under the neck does not give way acts as a hinge and allows angular adduction deformity but not mass displacement. This displacement if marked and uncorrected will give a permanent coxa vara deformity.

Treatment is by abduction and a plaster of Paris spica from toes to axilla. H. B. LODER.

Cohn I. Some Facts About the Repair and Treatment of Fractures. *N. Orl. M. & S. J.* 1917 LXV 419

The periosteum is a fibro elastic membrane which protects bone gives additional nutritional supply and acts as a natural splint after fractures. The periosteum does not contain osteoblasts. Bony defects are repaired in the absence of periosteum as well as if it were retained. Persistent localized pain is one of the best evidences of fracture. In order to obtain good results anesthesia immediate reduction immobilization and careful after treatment are imperative. Attempts at reduction which are not along anatomical lines will not reduce deformity. Traction should be in the direction calculated to oppose the muscles producing the deformity.

The idea of waiting for the swelling to subside before reduction is attempted should be relegated to the historic past. Immediately after accident the callus forming elements are most active the muscle contraction is then spasmodic but later amounts to a real contracture. Moreover during a delay the ends of the bone may become covered by a new connective tissue membrane which in itself may produce delayed union. Nothing can be worse than prolonged complete immobilization.

As a sequel to the dissatisfaction over results obtained in fractures came Championniere's method of mobilization and massage. According to Groves



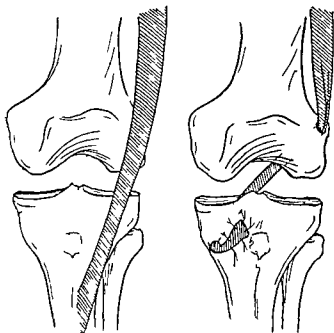


Fig 1 Formation of the anterior crucial ligament from the iliotibial band (Groves)

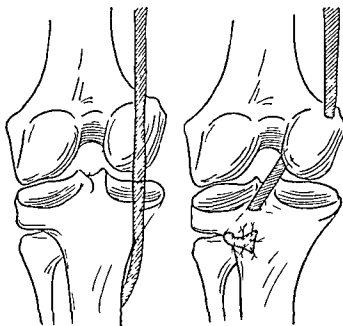


Fig 2 Formation of a new posterior crucial ligament from the tendon of the semitendinosus (Groves)

tubercle of the tibia. There it is cut across and dissected upward free from the underlying structures. With the knee fully flexed the two points of attachment of the torn ligament are clearly defined and cleared of soft tissue. With a one fourth inch twist drill a canal is bored from within the joint upward and outward through the external condyle of the femur and another downward and inward through the internal tuberosity of the tibia beginning in each case with the point of attachment of the original ligament. The iliotibial band rolled up as a cord is threaded through the femur and the tibia and drawn tight. Where it emerges below the knee the fascial ligament is turned upward and sewn to the deep fascia and periosteum of the tibia.

If both ligaments have to be reformed the posterior will naturally be repaired first. The inner limb of the horseshoe incision is prolonged backward and upward until the inner hamstring is exposed and the tendon of the semitendinosus is defined. This is cut from its lower attachment one and one half inches below the joint. New canals are then formed by drilling from within the joint upward inward and backward through the internal condyle of the femur and then downward and outward through the external tuberosity of the tibia. Through these canals the semitendinosus tendon is threaded and fixed to the periosteum of the tibia.

The tubercle of the tibia is refixed in its original position by an ivory or metal nail and the joint capsule carefully closed by catgut sutures. The knee is kept on a back splint for about a fortnight and then when the skin incision is soundly healed it is removed daily from the splint for gentle massage and passive movements. After one month the

splint is discarded and the patient allowed up on crutches. Full use of the limb is gradually restored as this can be done naturally without pain or force.

ALBERT EHRENFRIED

#### Quénu F. Wounds of the Foot and Instep by War Projectiles (Étude sur les plaies du pied et du cou-de-pied par projectiles de guerre). *Rev. de chir.* 1917, 7, 373.

Quénu concludes his extensive and elaborately illustrated article on war injuries of the foot and summarizes his results.

The main idea governing treatment has been to preserve the largest part possible of the injured foot provided that life was not menaced by so doing. Preservation is for utility, preservation of function and locomotion.

Quénu differs entirely from the view of American orthopedists who are unanimous in the opinion that a leg amputation well executed at the site of choice is superior from the point of view of prosthetics and of functioning to any partial amputation of the foot that amputation stump in such cases are not satisfactory while leg amputations at 4 to 5 cm above the tibiotarsal joint enable patients when they have a good apparatus to walk as well as with their two legs.

Quénu considers these opinions surgical heresies and believes that his long series of partial amputations of the foot as detailed in these articles, the transmetatarsal amputations of Lisfranc and Chopart, the subastragalar amputations of Pirogoff and Ricard, and the supramalleolar amputations of Syme and Guyon are witnesses against the fallacy of the American view. The case reports now submitted are impartial evidence of the excellence of

these operations. They justify the efforts made for maximum conservation of a leg amputation ought only to be a last resort either primarily or secondarily. In life is threatened or when the preserved segment is incompatible with function.

The primary operations which permit a maximum conservation are resections and cleansing operations these having the same general indication for the foot as in other regions. For resection it is necessary that the skin and soft parts should not be badly injured in fact resection is best suited to those cases when the deeper lesions contrast by their extent and importance with the slight external injuries moreover resection is more suitable to those cases where the bone injuries are confined to a segment. Crushing injuries where there is extensive loss of skin and subcutaneous tissue call for an amputation. The choice of the type of amputation depends on the site of the bone lesion and the amount of healthy skin at disposal.

Metatarsal or a Guyon amputation but a Lisfranc or Chopart transmetatarsal operation may be possible depending on the limitation of the bone injury. Injuries to the posterior part of the foot do not favor conservative operations. Quenu has not had a single case of the Wadsworth Mikulic operation.

Destructive injuries of the instep almost always call for leg amputation. Partially destructive lesions with preservation of the skin give different indications according as they are localized in the astragalus calcaneum etc. Resection of the astragalus is the operation of choice in all total fractures of the bone. In ankle joint lesions antalgectomy should not be done in all cases the indication is very according as the osseous destruction is limited to the malleolus and tibial articular surface or extends to all the lower extremity of the leg bone. In simultaneous lesions of the tibia calcaneum and astragalus the indications for astragalectomy are strict and it should be completed by a partial resection of the calcaneum.

Quenu gives the indications for secondary and late interventions. W. A. B. EN A.

Lord J. P. Consistent Surgery of the Feet. The Report of the Surgeon General. 1908.

Lord protests against the ancient classic tarsal amputations which followed the principle as laid down by Agnew, Mayer and Guerin that the bones of the foot should be considered as a skeletal unit to be treated by the knife and saw at the exact point which will yield the largest and most useful stump to the patient.

He reports the case of a boy of sixteen who received a gunshot injury carrying away the Achilles tendon, the posterior tibial tendons, artery, vein and nerve, the internal malleolus, the inner half of the astragalus, a portion of the scaphoid and distal portion of the tibialis anticus tendon and all of the

skin, fascia and ligaments in the path of the charge. First aid had been efficient. The case was seen after forty-eight hours. All distal tissues were cut away. The patient was removed to the hospital on the fourth day. One month later the remaining half of the astragalus was excised and the cartilaginous surface removed from the tibia fibula scaphoid and os calcis. The external malleolus was displaced forward one-half inch. The parts were stabilized by a wire nail through the os calcis into the tibia.

One month later tenoplasty was done on the Achilles tendon posterior tibial and the anterior tibial neuroplasty was done on the posterior tibial nerve which lengthened two and one-half inches and imbedded in fatty tissue. Excision for a small area in the skin the wound was primary union.

For more than a year the patient has had good use of the foot. The limb is five-eighths of an inch short, a deficiency partly corrected by a felt pad under the heel and two trafts on the heel of the shoe. There is a very slight limp due to the stiffness but no pain. Satisfaction has returned except in a small area on the heel.

Patel M. The Value of Total Tibial Resection in Fractures of the Lower Part of the Leg (De l'ablation totale de la tibia inférieure dans les fractures de la partie inférieure de la jambe). S. d. h. r. d. P. 97. 1. 97.

Patel refers to 4 cases of infected fractures of the lower part of the leg which not only the joint but the bone itself is diseased. In one case the tibia fibula extended 5 cm. below the tibioastragalal ligament. The bone tissue was principally involved the soft parts being more or less intact.

Instead of amputating which procedure seemed indicated Patel's tone of the tibia and fibula at 5 cm. from the joint removed the astragalus, promoted the tibial stump to the calcaneum and fixed it in place by a plaster apparatus. The result exceeded his anticipations. Within a month later there was union, high grade rigidity of the foot and good motion. Excellent functional result. This as a fully functional foot 6 months later the patient could walk without the aid of a stick.

Encouraged by the result the author followed the same procedure in other cases all resulted excellently. No special technique is followed, any procedure remains as a fully preserved and the ligamentous attachment of the malleolus are carefully retained. Radiographs show the resection of the distal ends of the tibia and fibula of 5 cm. of the tibia and the soft bony union between the tibia fibula and calcaneum. W. A. B. EN A.

S. Ubeyran and P. Rrre. Reconstitution of the First Phalanx of the Thumb by Means of a Cylindrical Graft (Reconstitution du premier phalanx du pouce par greffe cylindrique). L. 3. m. d. 97. 49.

A soldier was struck by a piece of shell which fractured the metatarsal and the first phalanx of the

right thumb. A fistula and a pseudarthrosis developed. The thumb was useless. Of the first phalanx only two small fragments remained which represented the two articular extremities.

A longitudinal dorsal incision of the thumb was made. The fistulous tract was excised with resection of the lower phalangeal fragment which was attacked by osteitis. The metacarpal fragment was curetted and allowed to remain on account of the muscular insertion. A cartilaginous ring about 4 cm long was removed from the tenth costal cartilage buried in the thumb tissues and fixed to the periosteum by catgut cutaneous suture and thumb splint. Primary union followed.

Two months later the thumb was well cicatrized and had assumed its normal shape. The first phalanx offers bony resistance. The thumb articulations are perfect; the man is able to seize objects between the thumb and index finger. Movements of the first phalanx on the second are restricted on account of the tendon laceration. W. A. BRENNAN

Beck, C. Tendo and Neuroplasty. *Surg Clin Chicago* 1917 1: 985

After traumatic section of the ulnar nerve and the tendons on the medial side of the arm just below the wrist a good result was obtained by two operations. In the first the nerve was repaired by cutting off a lateral graft from the proximal portion to bridge the defect and the tendons of the flexor carpi ulnaris and the long flexor muscles approximated and sutured; the latter with some difficulty on account of extension contracture of the fingers. Nerve function returned but contractures due to the scar resulted in permanent flexion deformity of the second, third and little fingers.

At a second operation tenotomy of the superficial and deep flexors of these fingers was done at two levels through a palmar incision so that when the fingers were extended the distal end of the superficial was approximated to the proximal end of the deep tendon. Union took place and the result was good flexion of the fingers except for the last joint which was precluded by making the two tendons of each finger into one. W. A. CLARK

Little, E. M. Modern Artificial Limbs and Their Influence upon Methods of Amputation. *Brit Med J* 1917 11: 550

In amputations of the lower limbs the first consideration must be weight bearing while for the arms the coordinated movements should be considered. An ideal stump should be as long as possible, covered with movable soft parts, the scar should not be in a position exposed to pressure or adherent to the bone, and enough active muscle should be left attached to move it with adequate force. Amputation at joints is objectionable because the stump will be bulbous in form, extra large flaps are necessary, and the joint of an artificial limb will not come at the right place. Stumps in the lower third of the thigh are much more sound than those

of the middle and upper thirds. In the arm the upper three or four inches of the humerus are unavailable as an attachment for the artificial member. Every inch here counts, and as much bone as possible should be saved when amputating above the middle of the humerus, even though there may not be enough skin to cover it. For the region of the elbow, amputation above the condyles is to be preferred if the forearm bones for at least an inch and a half below the biceps insertion cannot be saved. The contraction of the biceps tends to push off the bucket of the artificial arm. Therefore the middle third of the forearm offers the best site for amputation. The lower third does not give a good stump on account of cyanosis and poor nourishment.

For the thigh amputation between the trochanters is better than the upper third for such a short stump is not a sufficient lever to move the artificial limb. About forty-two per cent of all thigh amputations of the 549 amputations at Rochester which furnish the basis for this discussion were at the middle third. The eccentric position of the femur should be remembered and as much as possible of the thinner soft parts on the external aspect of the bone should be conserved.

Supracondylar amputation gives the best thigh stump for fitting in artificial leg. Below the knee the most favorable site is the lower part of the middle third, for in the lower third the bones are too small and the soft parts being badly nourished become cold and cyanotic. The 1100-off amputation of the foot often results in a tilting over of the os calcis and a Chopart stump is pulled by the calf muscles so that the lower end is turned downward exposing the scar to pressure. A Syme amputation just above the malleoli is to be preferred to either of these. W. A. CLARK

## ORTHOPEDICS IN GENERAL

Litzenberg, J. C. Sacro Iliac Joints in Obstetrics and Gynecology. *J Am M Soc* 1917 10: 1759

Litzenberg has reviewed the literature, analyzed his own experience and appended several case reports to prove (1) that the sacro iliac synchondrosis is a true joint and is therefore subject to the same diseases and ailments as other joints, and (2) that in the case of many women who for years have been treated for female trouble, an examination of the sacro iliac joint is finally made and a correct diagnosis given.

Sacro iliac joint affections may occur in the pregnant or the non pregnant woman. Trauma and infection are the common causes, trauma being the most common cause.

Every pregnant woman is a potential sacro iliac joint patient and should have her pelvis supported and faulty attitude corrected by a properly adjusted maternity corset. Not every sacro iliac joint during pregnancy presents a pathological condition, but it is certainly more movable and therefore more liable to cause pain.



in children does not always give a stiff hip as is expected in the adult. Differentiation between Perthes disease and tuberculosis is not always possible.

Fourteen cases are reported and many roentgenograms are shown in this clinical study of the varieties of diseases of the hip joint. A boy of nine who had walked lame for two months without pain recovered with practically normal motion four months after application of a spica cast for two weeks although the final roentgenogram showed a serious amount of destruction in the head of the femur. This case

of Perthes disease is contrasted with a border line case in which the course was longer and functional recovery not so good and with another case frankly tuberculosis which extended over six years and resulted in destruction of the head and almost complete ankylosis of the joint.

Another case of unusual interest is that of osteoarthritis in a girl of nine in which the roentgenogram confirmed the diagnosis. A man of fifty treated by various surgeons for 35 years for tuberculosis of the hip was finally found to have had a coxa vara.

W. A. CLARK

## SURGERY OF THE NERVOUS SYSTEM

### Owen G. Gunshot Wounds of the Peripheral Nerves and Their Surgical Treatment *Med J Austral* 1917 ii 389

The author reports 57 cases of nerve injuries due to gunshot wounds. Practically all of these cases were operated upon in base hospitals.

There are three main types of injuries.

1 Complete division of the nerve. The ends become involved in the infection adhesions are formed the ends become thickened and in some instances a portion of the nerve trunk may be shot away.

2 Incomplete division and bruising of the nerve. Adhesions form and a portion of the circumference may be replaced by a hard fibrous patch. If there are sensory fibers present pain is frequently referred to the peripheral distribution due to neuritis.

3 Nerve shock. In this type of injury there is no actual visible wound of the nerve trunk but the missile has exerted some influence on the nerve causing signs similar to those of a complete division. It is important to recognize this form because of the difference in prognosis and treatment. The axis cylinder probably undergoes some definite shock from the passage of a high velocity missile in its vicinity.

The diagnosis is made as follows: (a) A careful review of the anatomy of the wound is made. (b) The electrical examination of the muscles will not show the complete reaction of degeneration. (c) These cases nearly all show signs of definite improvement within six weeks. If placed under suitable electrical treatment there is an improvement in the electrical reactions in contrast to a dividing lesion in which the changes are more marked at the end of six weeks. No time is lost as the wound is rarely ready for operation before the end of six weeks.

While one awaits the healing of the wound the nutrition of the paralyzed muscles should be maintained. This is done by massage and electrical treatment. During this period deformities should be corrected and the affected muscles should be prevented from stretching.

In operating the strictest asepsis is necessary.

Never cut into a war scar is a good rule to follow. The normal nerve should always be exposed above and below the lesion and then followed out to the ends. Where there is complete division it is necessary to remove the fibrous ends and as a result there may be shortening but this may be overcome by putting the limb temporarily in a position which gives relaxation. The trunks may be split to lengthen them or it may be necessary to anastomose to a nearby nerve. The union in most cases has been made by passing one fine catgut suture in a round needle through the nerve trunk and a series of fine catgut sutures through the sheath only. After anastomosis the site is protected by muscle, adipose tissue or Cargile membrane.

It has been found that after adhesions have been removed from about a nerve trunk the response to electrical stimulation is immediately increased.

The after treatment is very important. There must be massage, electrical treatment, correction of overreaching muscles and deformities.

It is difficult to give a definite prognosis under six months. In general those cases in which there is only a partial division or adhesions offer a good prognosis. In complete division the prognosis must be guarded.

C. A. BOWERS

### Pitres and Marchand. Treatment of Causalgia by Injection of Alcohol into the Nerves (Injections intra nerveuses d'alcool dans le traitement des causalgies) *Presse méd* 1917 p 505

The efficacy of injections of alcohol into the nerve trunks in treatment of pains of causalgia consecutive to war wounds is known. The author gives the details of 3 such cases from the study of which he draws these conclusions:

1 Supralesional injection of alcohol causes a cessation of causalgic pains which the freeing of the nerve did not affect.

2 Injection of alcohol at 60 into a nerve cord interrupts the sensory conductivity. The motor inertia of analgic nature accompanying the causalgic pains disappears simultaneously with them.





menced by a pigmented nevus because the patient showed many of these on the external genitalia and on the skin of the trunk and face. The tumor developed slowly during the first four months. Toward the fourth month there were metastases to the ganglia. Some time before the patient's death there were metastases in the left lung in the left hemisphere of the brain and the vertebral column with hemorrhagic softening of the inguinal ganglia.

5 These questions remain to be solved. Why were all these metastases to the left? By what route were they formed (a) in the vertebral column (b) in the brain. W A BRENNAN

Gray H M W The Use of Liquid Paraffin in the Treatment of War Wounds *Brit M J* 91, 11 509

Clinical observations on the effect of liquid paraffin upon wounds in different stages show that

1 It prevents the development of symptoms of inflammation in the wall of the wound and redness and swelling of the skin do not develop or if present disappear. Pain is assuaged and performance of function made easier.

Liquid paraffin is not antiseptic but if an antiseptic is dissolved or suspended in the liquid paraffin with which a gauze pack is saturated the wound becomes or remains sterile. The antiseptics so used have been chiefly flavine brilliant green boric acid and iodoform. It is rather difficult to justify preference for any one of these. As there is possibly a selective action of the particular antiseptic against the particular organism a combination seems desirable. Non-poisonous antiseptics with more or less prolonged action when in contact with body fluids are likely to be most successful.

In all cases it is essential for success to have a thorough preliminary opening up mechanical cleansing and excision of damaged tissue.

C A HEDBLOW

Roger H Nervous Shock (Le choc nerveux) *Rev de méd Par* 1916 xxxv 422

The practical conclusion at which Roger arrives after a long experimental study of nervous shock is that since the effect of shock is to diminish the quantity of carbonic anhydride contained in the blood the patient may be made to inhale a mixture of carbon dioxide and oxygen. Levi has applied this in different morbid conditions and insists on its good results in shock. He employed a mixture containing 15 per cent of carbon dioxide and 85 per cent of oxygen. In the surgical clinics of Florence apparatus containing the gas mixture is provided in the operating rooms and it is administered at the least sign thus avoiding anæsthetic and shock accidents. By inhaling the mixture after the operation is ended owing to the exciting action of carbon dioxide respiration is activated and the tendency to vomit is avoided. W A BRENNAN

Scott T B The Internal Secretions *Practitioner* Lond 1917 xcix 474

In the last two years two gland extracts have come into notice which were rather on the shelf before i.e. the parathyroid and the anterior pituitary or in its modern name pituitadin. Thus there exist as the chief therapeutic weapons the thyroid suprarenal pituitary ovary testis and parathyroid. Regarding the internal use of the extracts of some of these glands the author relates his experiences with the hope that they may be suggestive and stimulating to others.

He calls particular attention to the report of a special committee on the ductless glands made to the Italian Society of Medicine as follows. The more a man allows the fundamental principles brought out by the intensive study of functional pathology to influence his practice the greater will be his respect for the endocrine glands and the methods of diagnosis and treatment which increased knowledge of them makes possible.

The author reviews the present knowledge of the effects which follow the removal of the parathyroids and of the anterior part of the pituitary and of the therapeutic effect of these glands administered for various conditions.

He expresses his opinion that pituitadin or tethelin is a valuable and safe restorer of power in the feebleness of old age. From its intimate connection in early life with the process of growth and especially perhaps with the development of the gonads one would expect to find some stimulating effect on the nervous system all through life and apparently we do so. GEORGE E BELBY

Lane J W The Pilonidal Sinus *Litterat M J* 1917 xcix 956

The pilonidal sinus is located over the sacrum about the midline of the back discharging intermittently a thin purulent liquid. It develops from failure of the lower end of the medullary canal to completely close in the fœtus resulting in an invagination of cells of ectoderm which differentiate and produce the more highly organized hair follicle with growth of hair at puberty.

Examination of the sacral regions of 85 children between the ages of six months and four years showed 4 sinuses and 9 sacral dimples. Sacral dimples or depressions at the lower end of the sacrum correspond to the end of the medullary canal in the fœtus and are regarded as potential sinuses depending on trauma or infection to start the inflammatory reaction with the above sequelæ.

Sinuses usually develop in early adolescence following the history of a fall upon or a contusion to the sacral region with the subsequent development of a sore over that region and later a bloody or purulent discharge causing no particular pain but running a chronic course until the patient seeks relief in operation.

Technique consists in excision *en bloc* of the sinus under local anæsthesia including all ramifications.

which are discovered by means of a probe. Exact locations should be mapped before beginning the excision.

As to pathology hair is found in most cases. In long neglected cases the sinus has been reported to have entered the pelvis through the sacrosacral crotch appearing on the body surface beside the anus.

H. J. VAN DEN BERG

Stewart G. N. and Rogoff J. M. Effect of Stimulation of Sino-Vagal Nerve upon the Rate of Liberation of Epinephrine from the Adrenal. *J. Exp. Med.* 97, 637.

The fact that the spontaneous liberation of epinephrine is dependent upon the integrity of the vagal nerve is running in the sympathetic system has led to attempts to influence the rate of liberation reflexly. The authors have previously published experiments in the cat in which the rate of liberation of epinephrine during and without stimulation of bronchial nerves were compared by means of the denervated eye reactions of Meltz and by the rise of blood pressure produced when adrenal blood collected for a known time in a splanchnic pocket was released and the results were negative.

They have since repeated the experiments on cats and dogs drawing off blood from the splanchnic pocket and testing it on rabbit intestine and uterine segments. In this way the adrenal blood was applied to the test objects without dilution. Here the eye and blood pressure reaction is less than necessarily much diluted. On the other hand the use of the little reactions has some great advantages. The blood is not withdrawn from the vessel and accordingly there is no danger of loss of a part of the epinephrine in the necessary manipulation before the blood is applied to the gements. The development of the presopapillary property of lotted blood a serious complication for some of the methods of testing extracutaneous blood is avoided and possible effects upon the rate of liberation of the foci of blood are none of the foci of the epinephrine in it when withdrawn from the body are also excluded. Most important of all the rise of blood pressure especially if interpreted by the aid of the eye reactions affords a direct quantitative comparison of the amount of epinephrine liberated in successive observations.

The authors carried out a series of experiments on dogs. The adrenal blood was collected through a boiled and oiled cannula in the inferior vena cava. The splanchnic pocket was usually much shorter than that employed for the eye and blood pressure reactions where it was essential to have as roomy a pocket as possible. With this short pocket only a small dead space was left filled with blood which had passed through the adrenals during one set of experimental conditions at the moment when the experiment I conditions had been changed. To reduce still further any overlapping of the blood samples successively collected with and without stimulation or excitation of the sensory nerve was

started slightly before completion of the collection of the preceding no stimulation sample and vice versa. Once begun the flow of blood from the cannula was interrupted sample after sample being collected. The time of collection and the weight or volume of blood being accurately measured. The rate of blood flow during the collection of each sample was known.

To summarize an attempt was made by the authors to determine whether stimulation of afferent vagal sciatic and abdominal produced a detectable increase in the rate of liberation of epinephrine from the adrenal as determined by test on adrenal splanchnic blood or rabbit intestine and uterine segment. The result they state was negative.

GEO. C. E. BELL

Addis W. H. F. The Cell Changes in the Hypophysis of the Albino Rat After Castration. *J. Comp. Path.* 97, 44.

The portion of the rat of the albino rat is followed by definite progressive alterations in the structure of the endocrine glandular portion of the hypophysis.

Both mature and adult animals were used. The hypophysis is material from the experimentally castrated animals at various periods after operation. The longest period being nine months. All rats the hypophysis from a control animal of the same litter is taken as a control.

The author's summary is as follows:

Castration in the male albino rat produces definite histological changes in the structure of the endocrine glandular portion of the hypophysis. These include changes in the glandular cell increases in the size of the blood channels and increased production of colloids.

The cells of the posterior portion of the hypophysis in the classification he used, dophiles, basophiles and chromophiles. After castration the basophiles increase in number. The larger ones begin to become vacuolated two months after operation. During succeeding months the number of vacuolated cells increases the larger ones becoming shaped with cytoplasm and nucleus in the periphery and the central part made up of the colloid containing vacuoles. The acidophils are not much affected. The secretory part of a slightly diminished in average diameter. Caudally some of the matured number of granules and increased in number. At seven months after castration the number of distinctly stained acidophils increased daily reduced. Some of the reserve cells in the first month after castration appear to become basophil cells. In the latter months some of the acidophiles appear to gradually differentiate into reserve cells.

The basophils, the certain features show a large cytoplasmic body which may be the reticular apparatus of Golgi or a centrosphere or both combined. The acidophiles show a similar structure much smaller in size.

4 The experiments afford strong evidence for the view that there are at least two actively functioning types of cells in this part of the hypophysis and that both of these are derived in histogenesis from a less differentiated type i.e. reserve cells. Some of the latter persist during mature life and serve as the source of supply for the other two types. M M MILLER

Folin O Recent Biochemical Investigations on Blood and Urine Their Bearing on Experimental and Clinical Medicine *J Am M Ass* 1917 LXV 1209

The author discusses this question with reference to its bearing upon clinical and experimental medicine and expresses his conviction that both the biochemist and the clinician must pay more and more attention to this important aspect of medical research. Scientists of earlier generations made many discoveries in the realm of metabolism and medicine but the pioneer stage is over and the surface problems have been largely solved.

It is only by means of finer and ever finer technique that progress can be made toward the solution of the many metabolism problems which must be solved by the present generation and those who follow in order to secure an increasingly better basis for clinical experimental and preventive medicine.

GEORGE E BELLBY

Stewart G N and Rogoff J M The Relation of the Spinal Cord to the Spontaneous Liberation of Epinephrin from the Adrenals *J Exp Med* 1917 XXVI 613

The authors were not aware of any evidence upon the question as to where the central mechanism which sustains this secretion is situated and they therefore undertook this study. Elliott's statement that exhaustion of the store of epinephrin in the adrenals by electrical excitation of afferent nerves does not occur if the cord is transected anywhere below the level of the vasomotor center in the medulla oblongata but does occur when transection of the brain stem is made just above the anterior corpora quadrigemina his the authors believe no direct bearing on the question for it has not been proved that the exhaustion of the store is due entirely or mainly to increase in the rate of liberation of epinephrin on which Elliott made no observations. A change in the amount of the store of epinephrin would merely show that some alteration had occurred in the relation between the rate of formation and the rate of discharge of the epinephrin. Nor do they believe that such observations would even if accepted as proving an increase in the liberation brought about reflexly through a center in the bulb or higher up give any indication whether the steady spontaneous liberation of epinephrin is sustained from a center at this level.

Absence of effect of afferent stimulation upon the epinephrin store after section of the cord just below the bulb likewise affords no indication whatever that

the rate of spontaneous liberation of epinephrin has been interfered with. As a matter of fact they found in cats that after transection of the cord at various levels in the cervical region the secretion of epinephrin into the blood far from being abolished proceeds without interruption. The rate of liberation may even remain sensibly the same within the limits of error in the methods used for estimating it as before the section. This was illustrated in one of their experiments in which adrenal blood was obtained from a cava pocket before and after section of the cord opposite the body of the fourth cervical vertebra between the fourth and fifth cervical segments.

They record a series of experiments upon cats in which the cord was transected at various levels in the cervical region. In all eight experiments were made the results of which the authors consider singularly consistent particularly in view of the fact that there was no selection of experiments. The eight experiments comprise all those performed except one which was not reported because the animal died before it was satisfactorily completed. The results indicated clearly that there existed in the cord between the last cervical segment and the fourth thoracic segment a mechanism which sustained the output of epinephrin from the adrenal glands after the cord was severed from the higher parts of the central nervous system. The experiments proved definitely that the center did not extend lower than the thoracic segment mentioned and that at least an important part of it lay below the level of the last cervical segment. The possibility however was not excluded that the center might extend for some distance above the last cervical segment.

It is of interest in connection with the currently accepted view of the development of the adrenal medulla that the portion of the cord at which the sympathetic outflow begins should be identified as a center controlling the liberation of the only constituent of its secretion hitherto definitely recognized. If epinephrin in the quantities and concentrations in which it appears in the adrenal blood could be shown to fulfill an important office in maintaining the function of the sympathetic by activating certain of its elements or by heightening or prolonging the effects resulting from its excitation the location of an epinephrin center in the sympathetic region of the cord might acquire a new significance and it might then be permissible to speculate upon the possibility that the relative constancy of the epinephrin discharge so puzzling on the hypothesis that it directly influences physiological events by virtue of the gross changes necessary to produce a detectable hyper or hypoadrenalism is associated with a more general and permanent action upon the sympathetic mechanisms which does not entail the necessity of abrupt outbursts and remissions in the rate of liberation. To employ the authors simile if epinephrin is not the horse in the sympathetic machine



whole denuded segment. The segments immediately above and below keep their normal volume. The rapidity with which this occurs varies in different patients and the contraction is more marked in arteries of medium caliber than in the larger trunk vessels.

The secondary signs are a weakening or imperceptibility of the pulse and numbness in the limb observed in the first hours after operation but in from three to fifteen hours the characteristic reaction occurs. It is marked by a local increase in temperature of from 2 to 4 and by elevation of arterial pressure. The reactions are temporary and last for about fifteen days.

A study of the first operative results shows  
1 That voluntary muscular contraction apparently depends on the sympathetic.

The method of production of dry arterial wounds which are at least facilitated by the arterial contraction occurring after destruction of the sympathetic is explainable.

2 The true nature of certain neuralgias if not of all as such are cured by excision of the peripheral sympathetic nerves.

3 The sympathetic nerves play an important part in the production of Babinski Froment reflexes and also of the motor paralysis which follows certain arterial lesions.

The author has performed sympathetomy in different types of cases in those in which the chief element was pain in those with contracture or with vasomotor or trophic disturbances. In 11 cases the operation was done for pain some patients were entirely cured but it does not give an absolute result although often favorable. Five cases were operated upon for trophic ulcerations and all were successful. Three cases were for large oedemata, 1 resulted successfully, 1 relieved the symptoms and 1 gave an incomplete result. In 18 cases operated upon for reflex disturbances there were 3 practically complete recoveries, 10 showing more or less improvement, showing improvement followed by recurrence, 1 in which after a check voluntary movements were resumed and 2 complete failures.

In the severe forms of the Babinski Froment syndrome hot paraffin baths with massage and re-education were found necessary to supplement the operation in order to obtain the best results.

W A BRENNAN

**Macquot P and Fey B. The Gravity of Arterial Lesions of the Lower Limb in War Wounds**  
(Gravité des lésions artérielles du membre inférieur dans les plaies de guerre) *Rev de chi* Par 1917 lu 241

In their surgical ambulance during four months the authors have observed 61 cases of wounds of the large vessels of the lower limb. Among these there were 27 amputations representing 44 per cent and 14 deaths 23 per cent. If those cases be deducted where death resulted rapidly from shock etc. there remain 54 cases with 25 amputations and 7 deaths.

Of the 27 amputations 10 were necessitated by gangrene it is especially this complication which lends particular gravity to arterial lesions of the lower limb. Sometimes the gangrene is purely ischemic sometimes it is moist gangrene but most often ischaemic gangrene and gaseous infection develop together in forms more or less extensive and rapid.

The gravity of arterial lesions is still more striking when compared with other limb wound. In 308 extensive wounds of the leg or thigh 14 of which were fractures there were only 27 developments of gaseous infection of which 8 cases required amputation. Altogether in these cases only 17 amputations were necessary or 55 per cent and the total mortality was 35 or 11 per cent.

The arterial lesions most frequently observed in the lower limb are lateral wounds or complete sections. There were 6 cases of thrombosis by contusion.

Ischaemia is the primary factor. It is much more frequent than in civil practice and the difference is no doubt due to lesions of the neighboring tissues. The blood supply is not alone interrupted in a principal vessel sectioned or thrombosed but also the neighboring collaterals are sectioned or thrombosed and cannot aid in re-establishing the circulation.

The second factor of gravity is infections and there are also minor causes such as bone venous and nerve lesions which aggravate the prognosis.

When an arterial lesion is proved or suspected it is necessary to operate at once and find the vessel, examine the lesion and affect haemostasis. The best route of approach will usually be the path of the projectile which should be opened up till the lesion is reached. However in many cases this is not the method of attack and the author details such conditions.

For the treatment of infection the authors state that trials of the Dakin fluid according to the Carrel technique do not appear to have given better results than dry aseptic dressings or the use of magnesium chloride.

W A BRENNAN

**Udley F B. An Analysis of 998 Consecutive Complete Blood Counts.** *Penn M J* 1917 vii 106

Nine hundred and ninety eight consecutive complete blood counts made with the same instruments throughout and by the same man and with the same relation to meals exercise and cold are studied. The haemoglobin estimation the number of red cells per cubic millimeter the color index and the morphology of the red blood cells were of value only in indicating the presence or absence of an anaemia. The enumeration of the white blood cells was helpful to confirm or point the way to a diagnosis of an existing condition or to suggest its absence in suspected cases. Far more was learned from a study of the various kinds of white blood cells.

Of the 998 differentials made a survey shows that

the polymorphonuclear neutrophils the basophiles the myelocytes and lymphocytes practically all fall within the prescribed limit stated by the various authorities. There were eighty-eight smears which showed an absolute eosinophilia of which thirty-seven fall within the limit of possible associated conditions found in the literature. In fifty-one or a 57.9 per cent of the cases the eosinophilia did not assist in the diagnosis these included twelve cases of intestinal putrefaction two cases of morphiaemia and nine cases of hyperthyroidism. A survey of this series shows that these patients were suffering from poisons either exogenous or endogenous and that these poisons are correlated so far as a chemotactic action for the eosinophile is concerned.

There were 166 smears in which the large mononuclears were 5 per cent or over. In this series 86 per cent of the cases the presence of large mononuclears in excess of normal cannot be explained in the light of our present knowledge. It seems however silent that they should be increased in neuroasthenia pulmonary tuberculosis intestinal putrefaction and hyperthyroidism which classed together may be regarded as an asthenic group and total 38.5 per cent in this series. Accepting the chemotactic theory the whole group of asthenic cases neuroasthenia in particular may be suffering from an unknown poison responsible for the condition which has allied forth the large mononuclear. There were 20 smears which showed transitionals in excess of 5 per cent. Relative to the limit made by some that the transitional small large mononuclear it is noted that in the present series of 66 cases where the mononuclears were in excess of normal the case only 3 cases where transitional were in excess of normal. This is evidence of the independence of the sternal cell.

Of the entire series 586 counts offered no direct assistance in the diagnosis prognosis and treatment of patients. Of the remaining 47 counts the way to a diagnosis was pointed out in 23 cases. In the remaining 380 cases the blood count was helpful in diagnosis. A plan is made for uniform classification of blood cells for direct hemoglobin readings in grams rather than on the present arbitrary percentage basis and for the use of certified standardized instruments.

C. B. FREELICH

**Sanford A. H. Selection of the Donor for Transfusion. J. L. 107 698**

The author has used the methods of Brem and Mos in determining the choice of the donor in blood transfusions and has found the Brem method to be superior because of its simplicity and accuracy in the selection of donors. In addition the principles of the test can be applied by any one testing the recipient's blood directly with that of the prospective donor.

It should always be remembered that the essential thing in the selection of a donor is certainty that the patient's serum will not agglutinate the donor's corpuscles.

H. H. FREELICH

**M. I. Stearns W. W. Fortune S. T. and F. R. M. Pot Transfusion Reactions. A Review of 280 Transfusions Performed in the Wards of the Presbyterian Hospital, New York City. 1m J. M. S. 971 733**

The authors have reviewed 280 transfusions performed on 99 patients with the purpose of discovering under what conditions transfusion is a proper therapeutic measure. What the real cause of the post-transfusion reaction is and what factors in its production can be eliminated.

Their conclusions are as follows:

Transfusion is of real value in cases of hemorrhage in cleavage operative cases before during or after operation in pernicious anemia and in some secondary anemias. It is of little or no value in septic operative cases cases of bacteremia or case of a true leukemia.

The sodium citrate method of Lewish is simple and satisfactory. The blood is taken through a large needle from a vein in the donor's elbow into a flask containing sodium citrate solution. A solution of 5.8 or 10 per cent is used made up of sodium chemically pure sodium citrate crystals dissolved in freshly distilled water and sterilized in an autoclave. The final dilution of sodium citrate should be 0.5 per cent. The pre-tents clotting better than a 0.2 per cent solution. No toxic symptoms are observed from as much as 5 gms. which is equivalent to 0.5 per cent in 1000 cc. of blood. After the blood is collected it is strained through sterile gauze into a sterile flask to remove any small clots and administered by drawing it through glass tubing joined with short rubber tubes through a 3-way stopcock into a glass syringe and then injected through the stopcock into a medium-sized intravenous drip chamber. This syringe method of administration is used because it is frequently difficult to enter and stay in the recipient's vein. The drip chamber is large enough to let the blood flow by gravity and it is quick and easier. All the apparatus is sterilized in water distilled the day it is used except the flasks and needles which are dry sterilized. The apparatus is shed into the citrate solution for the blood enters it in order to prevent slight hemolysis from the water in the tubing. By this method a complete transfusion of 500 cc. of blood can be performed by one person in about thirty minutes.

3. Blood grouping should always be carried out before a transfusion. Where a reliable laboratory is at hand the direct grouping of donor and recipient is not necessary but otherwise should always be performed. Failure to determine the compatibility of the bloods may result in the patient's death.

4. Post-transfusion reactions occurred in 63.6 per cent of the cases in the series. The reactions varying greatly in degree but all being evidenced by a rise of temperature to 100° or more.

5. The recipient in good general condition is much more likely to have a reaction than the one in poor condition.

6 The method of transfusion the blood relation ship of donor and recipient and the blood grouping of the recipient seem to have nothing to do with the occurrence of the reaction

7 Transfusions of small amounts of blood 1 c less than 100 ccm are less likely to be followed by reactions than are transfusions of larger amounts

8 The more transfusions a patient is given the more likely he is to have a reaction especially if the same donor is used a large number of times The blood of some donors is more likely to cause reactions than the blood of others

9 In some cases the post transfusion reaction is accompanied by a marked polymorphonuclear leucocytosis Whether this is due to intravascular hæmolytic or to the formation of a toxic product from the partial splitting of a foreign protein cannot at present be stated It seems most likely however that one of these phenomena is probably responsible for most post transfusion reactions

ALBERT EHRENFRIED

**Perry R H Transfusion and Injection of Blood in Various Diseases of Infancy and Childhood**  
*South Pract* 1917 xxix 421

Perry believes that blood therapy may be curative or beneficial in many diseases of infancy or childhood

In hæmorrhagicæ neonatorum he has used the method of Schloss and Commisky Five to twenty ccm of blood from one of the parents is injected immediately into the infant's back two or three injections at intervals of several hours usually sufficing for a cure

Transfusion offers the best results in hæmophilia purpura hæmorrhagica anæmia following traumatic hæmorrhages and the hæmorrhages of typhoid and diphtheria The Lindeman technique is the method of choice Where transfusion cannot be done the next best thing is injection of whole human blood or blood serum

Transfusions are indicated but usually have only temporary effect in the primary anæmias They are contra indicated in acidosis Blood therapy should be given a thorough trial in marasmus The serum treatment of chorea scarlet fever poliomyelitis and erysipelas is still in the experimental stage

ALBERT EHRENFRIED

**Jeanbrau E Forty Three New Cases of Transfusion of Citrated Blood** (*Quarante trois observations nouvelles de transfusion de sang citraté*)  
*Bull et mém Soc de chl r de Par* 1917 xliii 1921

Jeanbrau has already reported 11 cases of transfusion of citrated blood and now reports on 43 additional cases in desperately wounded men At first he confined himself to extraction of one half a liter of blood from the donor but he has extended this even to 750 ccm He has also changed the proportion of citrate of soda raising it from 0.4 to 1 per cent He uses a new ampulla capable of holding 500 ccm

Neither hæmophilia nor delayed coagulation was observed in any of his cases however it is well to administer 2 gr of calcium chloride per day for two days

In 40 moribund patients 43 transfusions were made Counting those surviving more than twenty four hours and those making a definite recovery transfusion has given 67 per cent of successful cases Many were nearly exsanguinated and severely shocked cases

Jeanbrau draws from the basilic vein of the donor He thinks that transfusion of venous citrated blood has the advantage that it can be made at the patient's bed The operation is easy and rapid and can be done in twenty minutes W A BRENNAN

**Hooker R S The Treatment of Staphylococcus Septicæmia by Transfusion of Immune Blood**  
*Ann Surg Phila* 1917 lxi 513

Hooker discusses the treatment of staphylococcus septicæmia by transfusion of immune blood His first opportunity to test the practical application of this idea was in April 1913 Since that time he has had four other cases The five cases included (a) two hospital cases both chronic staphylococcus infections accompanying a long standing condition of multiple suppurative osteomyelitis and resulting in general sepsis progressive anæmia and failing resistance (b) three cases seen in private practice which were general bacteræmias developing rapidly from localized acute suppurative processes

In all five cases the patients were so ill at the time transfusion was proposed that the outlook was considered almost hopeless The two chronic cases made a complete recovery One of the acute cases an osteomyelitis of the tibia and radius made an immediate and uneventful recovery the other two acute cases both infections of the face with bony involvement improved in a most striking manner but died suddenly while seemingly convalescent from cerebral embolism on the eighth and eighteenth days respectively following their last transfusion Four cases were transfused with blood from donors who had been subjected to varying degrees of immunization with vaccines derived from the patient's infecting organism One case was transfused from a non immunized donor

The author summarizes his results as follows

The general conclusion to be drawn from a study of these cases is decidedly indicative of the efficacy of immunized blood transfusion in chronic staphylococcus septicæmia and especially in those which complicate bone conditions This conclusion would seem applicable to any delayed recovery from severe staphylococcal infection where the resistance is lessening and is likely to be non responsive to active immunization by vaccines

In acute infections early blood cultures and immediate immunization of a donor are of the utmost importance If urgent it is best not to wait for full immunization but to give the first transfusion even after one dose of vaccine The effects of the





nephropathy similar to spontaneous renal lesions has been produced in a series of experiments on dogs. These experiments have been in accord with the growing impression that micro organisms are etiologically associated with progressive lesions of the kidney in man. The bacillus bronchisepticus produces spontaneous disease in the dog and the authors include a report of such a case with autopsy findings. Five ccm of a thirty six to forty eight hour growth were injected hypodermically directly into the renal artery after reaching the kidney through a longitudinal abdominal incision and isolating the artery by blunt dissection. After injection the vein was compressed for a few seconds to secure complete spread of the bacterial emulsion throughout the kidney.

According to the results obtained the animals were divided into three groups:

1. Immune animals that showed only a transient renal lesion, old or at least full grown animals evidently having a well developed immunity.

Animals that died with a fulminating renal lesion and an acute general reaction usually occurring in the young animals.

3. Animals that showed a milder renal lesion which progressed after a less severe general reaction. These animals ultimately succumbed to renal insufficiency provided the un.injected kidney was removed after the acute stage had passed.

The protocols of the various groups showed for the first group rapidly subsiding acute focal inflammatory lesions resulting in focal scars. These lesions are associated with intermittent albuminuria and cylindruria of months duration but no other evidences of renal insufficiency. In the second group a fulminating acute non suppurative process is coupled with an acute general infection probably focal in nature but demarcated by merely a slightly intense involvement. Here an analogy is found in acute septicemia in the human. The progressive destruction found in the small granular kidney of chronic diffuse nephritis corresponds with the acute changes in the third group followed by rapid and extensive anatomical alteration of the renal cortex and resultant impairment in function bringing on death after removal of the uninvolved kidney.

H. W. PLACEMEYER

## ROENTGENOLOGY RADIOLOGY

Blaine E. S. The Caliper Method of Foreign Body Localization. *Am J Roentg* 1 1917 iv 544

The method described is one devised by Fuester and is one of the methods of foreign body localization to be used by the army roentgenologists recently adopted by the medical department of the United States army. It is essentially a triangulation determination in which the mathematical calculation is rendered unnecessary by certain calibrations marked on arcs of a special caliper.

After a preliminary fluoroscopic search for the foreign body has been made to determine its

approximate location a metal cross is placed directly above it or nearly so and in a location readily accessible to the surgeon at the time of the operation. An exposure is made with the vertical ray passing directly through the center of the cross and at right angles to the plate the distance between anode and plate being exactly 60 cm.

The tube is then shifted 65 mm and a second exposure made on the same plate. With the aid of the calipers whose points are placed on designated spots of the shadows of the cross and foreign body the location of the foreign body can be accurately ascertained by simple arithmetical calculation. Distances are indicated from the center of the cross which is marked on the skin with a stick of silver nitrate. Deviations laterally caudad or cephalad can be indicated by an angle indicator or protractor whose use is described.

While the above method is essentially a combined screen plate method it can be used with the screen alone in case of necessity. Although realizing the possibilities of errors by this method the author believes that close co operation between the surgeon and a skilled roentgenologist will minimize these and afford a high percentage of successful foreign body removals.

ADOLPH HARTUNG

Skinner E. H. The X Ray in Thoracic War Surgery. A Review of Certain Recent Literature with Special Reference to Localization and Extraction of Foreign Bodies. *Interst W J* 1917 xiv 993

The author reviews current medical literature relative to the expediency of early removal of bullets and shell fragments in the lungs and thorax and methods for localizing same. He finds that authors of textbooks tend toward a more conservative and expectant treatment than is noticeable in much of the war literature more especially the French. He cites numerous authors and gives a bibliography of articles reviewed.

Attention is called to the apparent lack of use of portable roentgen apparatus close to the firing line. Regarding the localization of foreign bodies in the chest the multiplicity of methods used is very noticeable. Some of these simply give information as to the depth of the foreign body under a given point of the skin others permit of direct utilization at the time of operation by means of indicators. A close co operation between surgeon and roentgenologist at the fluoroscopic table is conducive to the best results according to the experience of numerous workers.

ADOLPH HARTUNG

Newell E. D. The Value of the X Ray to the Patient the Surgeon and the Railroad in All Injuries Where There Is or Could Have Been a Bone Lesion. *Interst J Surg* 1917 xxx 305

Cases in which injuries were apparently superficial where the trauma was not considered adequate to cause more than a local flesh wound have often been definitely shown on thorough X ray

examination to present serious bone lesions in other cases where the patient was profoundly shocked the apparent traumatism great and the impact violent enough to produce many fractures roentgenographic examination has proved that there were no fractures. There is no other instrument of precision in surgery or medicine that intelligently used gives so accurate and valuable information as does the roentgenogram in lesions of the bones and joints.

A series of illustrative cases taken from the author's records are given to show the benefit derived by the patient the doctor and the railroad at a small expenditure of money by the free use of roentgenography.

In all of this work the author has depended on radiographic pictures as he does not believe that fluoroscopic examination are at all reliable in bone work. The surgeon who is to diagnose and treat in these cases should be competent to read X-ray pictures if he expects to make a correct diagnosis and get the best result from his treatment. Radiograms are at times very deceptive and one must be constantly on the alert. It is only by persistent study that one can expect to be really efficient and competent to interpret the findings.

Malocclusion Clin. I Observe in Fft C s  
of Ut in C s n ma Treat d L y R dium  
(1) r m l h ll l t p 5  
q l o j d i t g M l

The case reported here all nonoperable cases or cases recur after a hysterectomy. Ducting the cases treat directly to give any reliable data the author finds that most of the remaining 46 were clinically and anatomically cured for a period varying from one to two years. In 4 cases there was a reduction of the tumor. In 5 cases cancer has not been effected but the general state is improving. In 7 cases there is not sufficient data to establish definite results.

The conclusions drawn by the author are: (1) That direct action of radium on the neoplasms manifested by a rapid diminution of the tumor or even by a complete disappearance of the tumor both clinically and histologically. (2) That indirect action shown by the effect on the concomitant symptoms pain, metastases and fistulas disappear and there is general improvement in the condition of the patient.

In favorable cases both direct and indirect effects are concomitant. In others the indirect effects occur without reduction of the tumor. In some inoperable cases the reduction was sufficient to make possible a transabdominal or vaginal hysterectomy.

With regard to operable cancer the author thinks that radium therapy ought not to replace surgery but that the best results will be obtained from the combination of both methods of treatment.

W A BRANNAN

# N S S N J Roentgenology in Medicine and Surgery J L 1917 67

The author credits roentgenology with an important role as a diagnostic and therapeutic agent. He considers it the duty of roentgenologists to disseminate roentgen possibilities and gives a brief history of the roentgen ray and the development of the science of roentgenology and finally the indications for its use in medicine and surgery both diagnostic and therapeutic.

The advantages of chest fluoroscopy over percussion to determine cardiac and pulmonary pathology is discussed as well as the method of action of the ray in the apertures.

In concluding the author mentions the value of prophylactic roentgen therapy to prevent recurrence of malignancy.

W A Evans

## Minges M. The Roentgen Ray in the Diagnosis of Pneumonia, Pleural Diseases and Primary Tumors N J M J 1917 97

The author contends that the roentgen examination in bronchopneumonia of adults is of little value. Like the acute lobar pneumonia although it gives a fairly characteristic picture its use as a routine measure is hardly indicated except in obscure cases. The roentgen studies in a lobar pneumonia have yielded some interesting results relative to the onset, course and termination of the inflammatory process and the relation to the clinical course and physical findings.

In the later stages when complications such as pleural effusion, pyopneumothorax, abscess and empyema or gangrene of the lung are suspected the information which may be derived from it are of the greatest value. It may make the diagnosis without subjecting the patient to the dangers and discomfort of the exploratory needle. The presence of adhesion and movement of the diaphragm can only be determined by the roentgen examination and the differential diagnosis between pneumonia and such subdiaphragmatic lesions as subphrenic abscess is rendered easy thereby.

Regarding pleural effusions more definite and absolute information can be obtained than by any other method. It has served to verify some of the current conception of fluid in the chest and caused other to be modified. The simultaneous presence of a capsulation of the fluid or limitation by adhesions are readily ascertained. The findings with interlobar effusions are described.

Various thoracic tumors are given considerable attention. Pleural tumors are merely mentioned as accompanying massive pleural effusion usually obscures any distinctive finding. Such tumors of the lung as those due to syphilis, sarcoma, carcinoma, lymphoma and Hodgkin's disease can usually be covered and diagnostically the aid of the roentgen ray. Discovery of the presence of metastatic malignancy in the lung may have an important bearing on the treatment of the primary lesion.

In conclusion the author warns against discarding the older methods of physical examination and attention to the history of the case. The roentgen examination does not furnish infallible diagnoses and best results can only be obtained by a combination of all the available measures at command.

ADOLPH HARTUNG

Welton G W. The Value of Roentgenology in Head Injuries. *Med Rec* 1917 xcu 85

Welton believes that the majority of linear fractures of the skull are relatively unimportant. He describes one case, a transverse linear fracture over the left posterior parietal region in which the roentgenogram rather than the pressure symptoms correctly indicated the site for operation.

Most interesting are cases of fracture without pressure signs. In Welton's experience about twenty per cent of skull fractures have required operation and operative treatment is determined not by the roentgenographic presence or absence of fractures but by signs of increased intracranial pressure. All depressed fractures of the vault are operated upon to obviate later complications, particularly epilepsy.

DAVID R. BOWEN

Pfahler G E. The Possibilities and Limitations of Roentgen Therapy in Malignant Disease. *J Am M Ass* 1917 lvi 985

The author treats the subject under the heading of superficial epitheliomata, degenerating moles and deep seated malignant disease which includes carcinoma and sarcoma. Under carcinoma he further divides the subject into (a) operable and (b) inoperable deep seated carcinoma. Deep seated carcinoma may be inoperable because of the extent of the disease, because of some associated constitutional condition rendering the patient unfit for operation, or because the patient refuses to employ surgery.

The type of epithelioma giving the best results is the basal cell epithelioma. It is the author's opinion that practically every case of this kind can be cured by the roentgen treatment. In certain cases showing extensive tissue change he prefers to supplement the roentgen treatment with methods to remove much of the diseased tissue, this being accomplished by electrocoagulation. Squamous cell epitheliomata are cured with greater difficulty and a most guarded prognosis should be given. Roentgen rays should not be depended upon solely to cure epitheliomata but electrocoagulation should be resorted to. If for any reason electrocoagulation can not be applied preceding the roentgen therapy excision is indicated. If metastasis has already taken place the involved glands should be removed surgically.

Degenerating moles should be removed either by desiccation, electrocoagulation or excision. The author prefers desiccation or electrocoagulation. The necessity for wide excision and complete removal is urged. Following the removal a single full dose of

deep roentgentherapy should be given and usually this is sufficient.

The author considers the limitations of roentgen treatment of deep seated malignant disease great. Under the heading of operable carcinoma he expresses the opinion that the best procedure is the surgical removal of the diseased tissue followed by deep roentgentherapy. Apparent cures of deep seated malignancy under roentgentherapy alone have been noted but the number of cases is too small to justify the recommendation of roentgentherapy to the exclusion of operative procedure. The most favorable time for application of the treatment is immediately following the operation. It is the author's plan even to expose the tissues before the wound has been sutured.

In inoperable cases where the inoperability is the result of the extent of the disease the chief advantages consist in the healing of ulcerated areas, the absorption of large carcinomatous masses and lymphatic glands which may be making pressure on the nerves or vessels. Occasionally the improvement in this type of case is such that an inoperable case has been transformed into an operable one. The results in the inoperable cases due to constitutional conditions or to a refusal of operative procedure depends upon the conditions but in each case the author urges a thorough course of roentgentherapy.

Deep seated sarcomata respond more readily to roentgentherapy and the author considers that the majority of them can be made to disappear under this treatment. He considers roentgentherapy more satisfactory than surgery except in periosteal sarcoma and in this type he advises strongly the postoperative roentgen treatment.

The author makes the following conclusions:

1. It is possible to cure the majority of cases of superficial malignant disease by roentgentherapy and it is possible to cure all cases of superficial malignant disease by a combination of electrocoagulation and roentgentherapy if applied before metastasis has taken place and deep tissues are involved.

2. Combined treatment should be used wherever the end results will be improved and this will apply in the majority of instances. There should be a combination of either electrocoagulation and roentgentherapy or operation and electrotherapy.

3. In the great majority of cases when the malignant disease has extended to the glands, to the bones or to the internal organs from the breast for example or from the uterus the patient cannot be permanently cured by the roentgen rays but can however be greatly benefited even in advanced cases.

4. The roentgen rays with proper technique can be expected to cure the majority of cases of sarcoma those most responsive to the treatment being medullary bone cases, sarcomata involving the soft tissues and least of all the periosteal sarcomata.

W A EVANS

**Myer W H A N w Type of Rotary Mesh Filter**  
 f Us in De p Roentgen Tl erapy w th Spe l l  
 Refe nce to V sical Ne plasms \ 1 M J  
 9 7 c 820

By means of drawings tests and photographs the author covers the theoretic considerations which led to the construction of his rotary mesh filter which has for its governing principle the aim to bring the maximum absorption rate to bear below the fourth centimeter depth. As described by him the appliance consists of a lead mesh so constructed that the square of the over diameter is equal to the square of the radius of the lead being imbedded in 3 millimeters of aluminum which is situated at the same time. The hole rotates on a neck in such a manner that the immersion of the filter in the filter salt solution is accomplished for one half the total time. This being true the dose can be doubled that with the plain filter yet the skin reactions but a single dose. Also since the effect of the mesh is practically not beyond the fifth centimeter in the body at least the rate is almost continuous exposure beyond the depth. A cooling tube with bromine for use is suggested to produce the desired results.

A summary of the literature of filtration with the author's rotary mesh filter is followed. It results in (1) a reduction of absorption rate in the upper depths of tissue (2) greater skin protection with the same dosage time for total employment of the filter (3) the possibility of increasing the age limit to nearly the critical generally used although the damage to the peritoneum (4) an increase in the deep transmission and absorption rate due in part to prolonged radiation of the second ray effects. This does not mean a larger time and certainly will not meet the approval of the barrister upholders of the doctrine of the maximum often radiological rate (5) it means that the present day results as measured by deep penetration and absorption may be attained with a shorter time because the same dose is produced in a shorter rate can be brought to bear though larger in the fewer areas (6) finally it dates the effectiveness of deep therapy with the popular multiple area exposure method more advantageously.

The list of vascular complaints useful for present day roentgen therapy according to the author includes inoperable epithelioma sarcoma and carcinoma for palliation if not curative prophylaxis preoperative postoperative reduction of malignant and prostatic hyperplasia where the symptoms are not adequately relieved by surgery and indicated operative operations not considered or refused.

The cross fire method of deep therapy is suggested in conjunction with the above described rotary mesh filter. Exposures are given from the front back and through the perineum. Single areas are chosen and larger than those frequently used to insure all of the deep area treated and addition with each exposure.

## HOSPITAL MEDICOLEGAL AND MEDICAL EDUCATION

**W d irth W S Obstetric Problems and the Coroner's Office** 4 J Ob 917 1 6

As coroners' physician the author meets many problems of interest to the obstetrician. Out of 500 cases examined about 10 per cent were young children and 4 per cent were women then pregnant or recently. He calls particular attention to the obstetric factors in the deaths of women and young children. To many fatalities are due to the obstetrician who should by a too narrow study of the phenomena of the subject at the expense of other fields. The hospital problem in all its biologic psychological and sociologic bearings together with the problems of inheritance and environment should be of attention.

The physiological condition of the birth canal peculiar in regard to cleanliness and local disease is important. Congenital diseases and the influence of the affective prenatal life should not be forgotten. Chemical adjustment which tends to influence the cellular activity begins very early in the mother. Certain drugs harmful to lower animals in embryonic life have also been found to be excreted in the urine of such drug-magnesium sulphate during pregnancy.

The problems of respiration in the newborn deserve consideration. Death at birth in a majority of cases is associated with some form of respiratory failure. The heart cord and placenta have been in tension for a long time when birth takes place but the respiratory mechanism must nevertheless assume an important role suddenly and maintain contact usually. Preliminary respiration is so instantaneous that the respiratory action or inhibition of the blood from the placenta may be a sudden long tension through the other organs and ultimately the heart.

In addition to the other important upped infusions of the infant at birth from the mother and of the fetal growth rate from the mother do not exist in the sphere of consideration. The glandular phenomena of great importance is the glandular growth of the proportion to the organ in the body. Thyroid disease for instance may be a disturbance by surgery on the blood vessels and on the heart. W L Bross

**C w n R W Th C ndu t on f Ho pit l T**  
 H S 4 4 Om H D

Among the recommendations mentioned are in proportion to the character of the staff increase in the number of paid men in the staff exclusion of incompetent men from operation education of the doctors to the best advantage of the hospital and the letter cooperation between members of the staff more skillful and better paid men in charge of labor time.

The author should be chemically laborious for making and testing chemical substances used for patients.

All laboratories should be open twenty four hours a day

Internes should receive more instruction from the staff and in laboratories Centralization of medical government and re education of the Board of Managers are recommended A medical executive should serve as Superintendent

In the conduction of hospitals the first consideration should be given to the patient The second consideration should be the site of the hospital The third consideration should be the plan of the hospital buildings It has been found that buildings of one or two stories have advantages over those of

many stories Inclines with a grade of one foot in six meet every demand of elevator or stairs

The fourth consideration should be the comfort and safety of the patient Preparations against infection in the operating room are thorough in the kitchen they are neglected More attention should be given to the cleanliness of food cooking utensils table ware table linen and dish towels and of the hands and clothing of the help

Odors from medicines drug or chemical that are useless or not essential are inexcusable

Smoking in a hospital should be forbidden

EDWARD I CORNELL

## MILITARY SURGERY

NOTE.—Readers are referred to the Table of Contents for other articles dealing with military surgery which appear under the various headings according to our anatomical arrangement

**Brown T F** *Disabilities of the War Med J Austral 1917 11 411*

The question is presented of reconstruction of men whose wounds have been healed but who have been invalided to Australia permanently unit France has grasped the situation and is treating these cases by electrical mechanical and light methods at the Grand Palais Paris with remarkable success

The author is convinced that the use of electricity and massage as usually performed although beneficial in a number of cases does not go far enough He urges the establishment of an Australian clinic in England to study the following (a) dry head radiant light and heat (b) wet whirlpool bath (c) massage and manipulation (d) mechanotherapy by the Zander method isolation of muscles and movable weights (e) electrical methods (f) re education of muscles (g) detection of malingering (h) schemes for the formulation of a scale of gratuities according to various disabilities caused by wounds which shall serve as a school for the instruction of officers of the Australian contingent

D N EISENDRATH

**Dupont** *The Employment of Adrenalin Serum in War Surgery* (Note sur l'emploi du sérum adréaliné en chirurgie de guerre) *Arch de méd et pl* 1 Par 19 5 liv 542

The author says that most of the wounded arrive in a more or less pronounced state of shock and need some restorative before being operated upon For some months he has used adrenalinized serum with good results A half milligram of adrenalin is mixed with each 500 grams of serum and every patient in shock is injected with 500 grams of this mixture As soon as he is operated upon a second injection is made and he continues to receive two injections per day for several days but generally it is not needed after two or three days The effects are marked

increase in blood pressure and a more ample pulse as well as improvement in the general condition

W A BRENNAN

**Dixon R G and Bates H T** *Treatment of Wounds by a Solution of Soap in the Casualty Clearing Station Lancet Lond 1917 cxviii 789*

This dressing has been used in 368 cases During the same period similar cases have been treated with other antiseptics including eusol hydrogen peroxide and bipp with the result that more soap is being used and less of the other antiseptics

A sample of common yellow soap was analyzed and found to contain water 4.6 fatty acids 63.0 combined alkali 4.6 free alkali 0 impurities 7.8 per cent This was considered suitable and it was found possible to make a two and a half per cent solution of it

The points claimed for the soap solution dressings are that they cleanse wounds quickly the dressings are much less painful than ordinary ones there is a saving of labor as the dressings need only be changed every three or four hours and the solution is easily procured easily made and cheap

EDWARD L CORNELL

**Nove Josserand and Tuffier** *The Functional Results in War Articular Resections 1914 1916* (Sur les résultats fonctionnels des résections articulaires en chirurgie de guerre 1914 1916) *Arch de méd et pl arm mil* Par 1916 lxxi 145

The authors report is based on statistics and information furnished by various orthopedic hospitals in France There were 107 reports containing 1850 cases of resection Of the total resections 1132 or 60 per cent were of the upper limb and 40 per cent of the lower This proportion is the inverse of amputations more than 60 per cent of amputations being in the lower limb and the figures confirm the view that the upper limb is more amenable to conservative operations than the lower

The value of resection of the upper limb is seen from the fact that the number of deaths is only about 5 per cent. In the case of the hip and knee resection shows 35 per cent of failures.

The time at which the resection was performed must also be known. Of 99 knee resections there were 36 within the first 3 days after injury giving 33 recoveries and 3 deaths and 13 secondary or late resections with 35 recoveries, 20 amputations and 18 deaths.

Detailed tables are given showing the functional value of limbs after various resections. In a general way the results show that articular resections give a useful limb. In the upper limb and foot the result is obtained by reconstruction of a solid joint with limited movements which is superior to amputation. In the knee and hip ankylosis in a good position is the favorable result. Use of the limb with the aid of an apparatus is obtained.

Although the general results are fair they are much inferior to those obtained from resection in civil life and this is accounted for by greater frequency of infection.

The author's conclusions based on the evidence afforded are as follows:

Resection is indicated (a) as a means of early disinfection of articular wounds (b) for drainage of suppurating arthritis (c) in the treatment of chronic histioid osteoarthritis (d) as a means of early disinfection of articular wounds or (d) as an orthopedic operation.

In a general way resection assures a rapid and definite recovery when done early but from a functional viewpoint the result is less satisfactory when the operation is performed early than when it is late.

In suppurative arthritis resection has given good results for all articulations except the knee. For the knee joint statistics show 5 per cent of failures and opinions as to treatment are divided.

The authors discuss the question as to whether better functional result cannot be obtained by improvement of the operative technique. The causes of defective articulations and ankylosis are to be traced to (a) the extent of the resection (b) the destruction of the periosteal popliteal sheath and (c) muscular insufficiency.

As regards the correct or definite end result the authors refer to the various kinds of orthopedic apparatus in vogue which have marked relief also to certain operated cases which offer a possibility of satisfactory surgical treatment of defects.

W. A. BRENNAN

**Cathelin F. The Urology Surgery of War.** (Chap. 1. Nephrology.) *Ann. Chir. G.* 1917, 1, 1-100.

Cathelin lays down some fundamental rules to be observed: (1) the use of cystoscopy in wounds of the lower pelvis; a routine systematic cystoscopic examination should be made in all penetrating wounds of the lower pelvis; (2) urethral catheterization in kidney injuries; (3) the treatment of in-

continence by epidural injections; (4) the use of autoplasty method; (5) the advantages of internal urethrotomy; (6) the need of laboratories for the various urinary examinations and others that may be necessary.

The ideal which dominates all urology surgery of war is that of conservation, not a blind conservation but that at which a clear-sighted surgeon can map out.

The author has treated 60 cases of war traumatism of the kidney and bladder and 15 major renal injuries with or without sphincter troubles, paraplegia or external wounds. Four special cases are given in detail also renal bladder injury cases.

Twenty-two cases of mutilating injuries of the external genitalia to urinary organs have also been treated. Fourteen were treated by autoplasmic methods, 5 recovered without intervention and in 9 internal urethrotomy was necessary. Catheterization gives full details of the various procedures to be followed in these autoplasmic operations. Such autoplasties are difficult to execute and require an experienced genitourinary specialist accustomed to this kind of operation.

W. A. BRENNAN

**Boyle H. E. G. The Use of Nitrous Oxide and Oxygen in the Rebreathing Apparatus.** *Brit. J. Surg.* 1917, 1, 1-10.

The author relates his experiences in 77 cases administered by himself, 38 per cent had had either chloroform or ether mixture. There were no fatalities.

Boyle attempts to prove a more extended use of gas and oxygen with regulation of rebreathing in major surgical procedures and especially in the treatment of compound wounds. He suggests that the administration of both is of great advantage and from the patient's point of view is infinitely a better alternative than ether or chloroform. He gives a formula for the mixture that the combination anesthetics are not to be placed in the hands of the casual practitioner.

E. C. R. N. M.

**C. N. L. S. S. Adopted at the Thirteenth Session of the Inter-Allied Surgical Congress (C. N. L. S. S. d. p. t. e. l. l. d. l. t. u. m. d. c. g. r. e. h. g. l. t. l. l.)** *Brit. J. Surg.* 1917, 1, 1-10.

The following conclusions were adopted at the close of the Thirteenth Session of the Inter-Allied Surgical Congress held in Italy.

Secondary complications of cerebral wounds are relatively frequent, therefore, a complete examination of the brain is necessary. The treatment of the brain hemiplegias, monoplegias, aphasia, etc., has a tendency to improve. The treatment of the domain of neurology.

2. Organic disturbances of the brain hemiplegias, monoplegias, aphasia, etc., have a tendency to improve. The treatment of the domain of neurology.

3 Late epileptic seizures of jacksonian type can be benefited by surgical intervention removal of the compressing cause or of the foreign body or projectile fragments. It is useless to intervene for one or two isolated seizures of jacksonian epilepsy because they may be due to the onset of encephalitis susceptible to recovery and on which surgical intervention would have no influence. Outside of cases where a foreign body or fragments exist epileptic seizures do not call for surgical intervention. In cases of hypertension lumbar puncture of the cerebrospinal fluid controlled by the manometer may be useful.

4 Late cerebral abscesses diagnosed and differentiated from non suppurating encephalitis should be operated upon after the precise clinical location made by the surgeon and neurologist. After exploratory puncture without destruction of its protective adhesions the abscess should be opened and aseptically maintained.

5 Late localized meningitis and encysted abscesses of the meninges must be operated upon.

6 The actual treatment of generalized meningitis is generally ineffective. Repeated lumbar puncture appear to be the most rational treatment.

7 Cerebral hernias with abscess should be operated upon and the abscess drained. It appears preferable to abstain from lumbar puncture in the primary acute feverish phase of certain cerebral hernias. To avoid the spread of a possible local infection when the infective processes have diminished lumbar puncture by decreasing hypertension will favor reduction of these hernias. Resection of the hernias is only justified in the case of local necrosis or of meningococci.

8 Intracerebral foreign bodies causing encephalitis epileptic seizures or an abscess should be extracted. Well tolerated foreign bodies should be allowed to remain.

9 Cranioplasty is indicated from the æsthetic point of view especially in the losses of substance of the frontal region. From the curative point of view it is only justified in cases in which the extent of the cicatrix is the only cause of complications observed. From the prophylactic point of view the danger of an ulterior cranial traumatism in the trepanned region can become an operative indication. In all cases there must be assurance that nervous complications chemical or cytological modification of the cerebrospinal fluid or papillary stasis is not a counter indication to intervention.

10 Early treatment systematic disinfection and primary sterilization of the traumatic intra-cerebral areas are the best prophylactic treatment of secondary infective complications.

*End results of the treatment of diaphyseal fractures of the thigh*

1 Generally the end results of the treatment of thigh fractures have been poor due to the extent of the injuries to the insufficiency of the resection and especially to infections of the area.

The end results of fractures of the upper third and especially of the lower third of the femur are the least satisfactory.

3 The most frequent late complications are (a) infections under the form of chronic osteomyelitis (b) deformities due to incomplete reductions (c) less frequently defects of consolidation or functional impotence of articular muscular or nervous origin.

4 Shortening is the most frequent deformity and is the least avoidable.

5 Rotation and angulation are most frequently due to insufficiency of surgical supervision.

6 Surgical asepsis should be the chief aim. Its insufficiency is the direct or indirect cause of the resulting defects. The delays and difficulties in the treatment of prolonged infections render the approximation of the fracture fragments more arduous.

7 Primary suture of the wound and secondary suture after cicatrization transform an open into a closed fracture and have an important influence on the end results of the treatment of thigh fractures.

8 The frequent stiffness of the knee as well as of the hip and foot isolated or associated may be prevented by early mobilization.

9 Muscular adhesions are the starting point of numerous functional disturbances which may call for surgical intervention.

10 Trophic disturbances muscular atrophy, edema and vasomotor trouble play an important part and ought always to be the object of early and persistent attention.

11 Marked deviations with or without osteomyelitis demand osteotomy. Where there is a concomitant osteomyelitis resection of the callus is generally indicated.

*Operations for nerve injuries*

1 Nerve operations as a result of war lesions have up to the present time given relatively poor end results. Partial lesions have a higher percentage of good results than total lesions.

2 The poor results are especially due to delayed intervention.

3 Operations should never be done in a suppurating area.

4 The three principal causes for lack of success in operations on the nerves are (a) sclerosis of the peripheral end which increases with the lapse of time (b) very considerable separation of the two ends (c) intensity and duration of suppuration.

5 Tendinous retractions articular ankyloses and ischæmic muscular sclerosis all tend to effectively diminish the value of the functional results. It is necessary from the very beginning to place the articulation in an appropriate position.

6 Primary suture of nerves which the present day methods of wound disinfection make possible is calculated to considerably improve results from the viewpoint of the frequency, rapidity and amount of functional recovery.

7 Even in cases where there is no success primary suture keeps the nerve extremities in such



a condition that a fresh intervention is made very much easier

8 Functional recurrences are slowly produced. They require months and even years which should be taken into account in assessing damage.

*Treatment of joint ankylosis*

1 The ankylosis of early operated osteoarthral lesions with the average delay of from 12 to 18 hours indicates that immobility per se will result from intervention.

Epiphyseal osteotomy epiphyseometaphyseal in nutrition fractures of the ulnar shafts in complete perforations according to present knowledge justify surgical clearance and retting followed by primary closure of the joint.

Epiphyseal epiphyseometaphyseal fixation either partial or total regarding the case call for a throtomy the reduction or a throtomy with excision of the epiphyseal partial atypical excision followed by primary union.

4 Primary excision only epiphysally indicated by the bone lesion. It will be limited to comminuted fractures of the articular extremities. However its indication is fewer in the case of the hip and shoulder than in the case of the knee elbow and in the hip. In doubtful cases it obtains a better functional ultimate economic value method should be followed in the case of myelitis learn the partial atypical resection.

Defect of functional result will justify late orthopedic resection the quality of which will generally be superior to that of primary excision.

5 Crushing injury with destruction of the principal articular trunk in the epiphyseal metaphysis.

6 Immediate mobilization should still permit operative treatment of the elements to have given better result than immobilization.

Resection is indicated in the case of total fracture.

*Treatment of the fracture of the ulna*

Bone infection is precluded by the amputation of other around. It speeds up the

3 (a) from place of placement of the medullary and compact tissue (b) at the distal end of the shafts penetrate through the bone tissue generally slow and limited.

Among the germs which penetrate the easiest may be cited the streptococcus the staphylococcus

the enterococcus and more rarely the anaerobic microbes. In the microbial flora of subacute or chronic bone suppurations the most frequent are the streptococcus staphylococcus enterococcus and pneumobacillus.

The treatment of chronic osteomyelitis is essentially preventive and does not differ from the treatment of the fracture.

4 The treatment of established osteomyelitis at the preoperative time purely surgical. It ought to be early. It consists essentially in (a) wide opening up of the abscess (b) minute search for and removal of all sequestra and foreign bodies (c) filling of the cavity.

When this is done the abscess closes to fill. Either immediate closure of the wound should be made the being filled by autoplasty or chemical treatment of the wound with secondary autoplasty for filling the bone cavity and suture. The latter method is that most generally followed.

*Fracture of the radius*

Wounds of the diaphragm are the deciding factor in the abdominal injury. Wounds of the thoracic and abdominal organs show nothing unusual from the anatomical point of view.

The nature of the abdominal organs is difficult to recognize clinically. Radiographic examination by fluoroscopic placement of the heart to the right is a diagnostic sign which should be noted especially for the left hemithorax.

3 The peritoneal incisions are almost absolute except in the case of the very small projection. Only the higher part of the abdomen especially to the right.

Out of five percent indications in the thorax and abdomen the perforation of the diaphragm call for cure.

4 Interventions in the transpleural thoracic region have many advantages in permitting inspection of the thoracic treatment of the pleural cavity and suture of the diaphragm. It also permits treatment of the subdiaphragmatic organ whether herniated or not.

The indication for laparotomy may be indicated.

6 Thoracic laparotomy permits extensive treatment of both thoracic and abdominal lesions by a single route.

W A B N N

# GYNECOLOGY

## UTERUS

Guthrie D Factors of Safety in Abdominal Hysterectomy *Proc Am J* 1917 xxi 63

Guthrie record 33 hysterectomies during the past 6 years with a mortality of 13 per cent. The surgeon should know the exact physical condition of the patient. Those who have suffered from severe metrorrhagia should be operated upon just before the onset of the next period giving the body a chance for recuperation. Efforts should be made to control metrorrhagia by salines tonics and other measures. If the hæmoglobin is reduced to 40 per cent and the bleeding cannot be controlled direct transfusion of blood is advised. To prevent postoperative shock due to loss of sleep and dehydration nervous patients are allowed to rest in the hospital for a few days prior to the operation.

Laxatives are given early in the afternoon of the day before the operation. Castor oil as a mechanical agent is the one of choice. To prevent loss of fluid from the body the patient is not wrapped in blankets the operating table is not kept warm and the operating room is kept just at normal temperature. In all cases of hysterectomy the patients are shaved in the afternoon and the abdomen treated with tincture of iodine. This is repeated just before operation. In addition the vagina is washed out with soap and water and a 1 to 5000 bichloride douche is given. This is repeated on the table in cases of complete hysterectomy.

Good anaesthesia by a competent anaesthetist in the Trendelenburg position from the beginning is very important. This position keeps the small intestine out of the pelvis when the abdomen is opened. When the peritoneum is opened lifting up of the abdominal wall with two fingers inserted into the abdomen will facilitate the sliding back of any coil of intestine that might have gravitated downward. Much less gauze is required for exposure and traumatism to the small intestine is lessened.

If there is no pelvic infection the gall bladder is palpated and if necessary attended to. The appendix is always removed unless the condition of the patient is critical.

The clamp method for the hysterectomy is used. The cervical canal is wiped out with gauze wet in bichloride. No strong antiseptic is used for fear of causing sloughing and subsequent intestinal adhesions. The other step of the operation are described and illustrated by charts.

The author urges the surgeon to give frequent personal attention during the postoperative course. The patient must also be watched carefully for the

first few days and plenty of fluid administered by bowel and mouth. Very little morphine is used usually one sixth of a grain before the operation. In postoperative atony of the stomach lavage every three hours with hot water is used. For ileus and retention of urine pituitrin is given successfully. Catheterization is avoided.

No postoperative hæmorrhage has ever occurred. The uterine vessels are ligated after fixing the ligature along the side of the cervix by a safety tie and then securing the vessel firmly by another tie of the same ligature. The vessels in the broad ligaments are secured by a safety tie then a lock suture throughout. L. R. GOLDSMITH

## ADNEXAL AND PERIUTERINE CONDITIONS

Novak E. Hæmatomata of the Ovary Including Corpus Luteum Cysts. *Bull Johns Hopkins Hosp* 1917 xlviii 349

The material upon which this study is based was derived from 83 cases in which one or both ovaries had been removed at operation. Some of these ovaries contained only one hæmatoma some a great many. The selection of this material was made relatively simple by the obviousness of hæmatomata on naked eye examination. In all cases the ovaries were cut into at various planes for the surface appearance of an ovary is of little importance as an index of its internal structure.

The study has aimed to include all hæmorrhagic lesions encountered so that the series includes small follicular hæmorrhages as well as the larger hæmatomata of pseudo-neoplastic type. In other words it was not limited to the comparatively small group in which the blood tumor was so large as to give rise to the symptoms which indicated operation. By far the largest proportion of hæmatomata studied as a matter of fact were quite small not exceeding 2 cm in diameter. These smaller lesions the author believes afford a much better opportunity than the more extensive ones of solving the important question of pathogenesis. The largest hæmatoma in his series measured 6 cm in its longest diameter. Larger ones than this are relatively rare.

In investigating the material the author was impressed by the fact that in the overwhelming proportion of cases hæmatomata of the ovary are the result of hæmorrhage into the follicular structures including the corpus luteum which is a derivative of the graafian follicle.

Novak summarizes his study as follows:

In the overwhelming majority of cases hæmatomata occur in connection with the follicular

structures of the ovary although occasionally they may be the result of hæmorrhage directly into the ovarian stroma. They are best classified as of the follicular corpus luteum or stromal type.

The first named group i.e. the follicular comprises those due to hæmorrhage into the maturing graafian follicle and those due to bleeding into the atretic follicle. The latter form is the most frequent of all representing the common clinical type of follicular hæmatoma. In the follicular type the source of the hæmorrhage is definitely traceable to the vascular ring surrounding the follicle. Such hæmorrhages are primarily perifollicular and therefore stromal but when sufficiently great they break through into the cavity of the follicle forming either large or small hæmatomata.

The corpus luteum hæmatoma is also very common being distinguished by its yellowish wall of lutein tissue. The various clinical types of corpus luteum cysts are explainable by reference to the normal life history of the corpus luteum. The latter like the growing graafian follicle may be arrested at almost any point by the occurrence of excessive bleeding into the cavity. This is especially common during the stage of vascularization in which a moderate amount of bleeding into the corpus lumen takes place as a normal phenomenon.

Stromal hæmorrhage or apoplexia ovarii is not frequent occurring most often in the course of infectious disease or with severe local inflammatory lesions. It has however been observed in the fetus and in the very young child.

A careful study of the menstrual histories of the cases on which this paper is based shows that the hæmorrhage which causes follicular hæmatoma occurs characteristically at or near the supposed time of ovulation i.e. between the seventh and sixteenth days of the menstrual cycles. The bleeding of corpus luteum origin as might be expected occurs later being apparently only an exaggeration of that normally occurring in the stage of vascularization and there is no characteristic menstrual history associated with the presence of hæmatomata in the ovary.

GEORGE E. BEILEY

McKay H. S. *Tubo Ovarian Infections* J. M. S. I. St. M. 15 917 473

A careful study of the etiology of tubal infection is essential to the proper management of tubo-ovarian infections. The operative treatment in many instances will be largely influenced by the proper understanding of the etiology. The causative agent can most frequently be ascertained by a careful history and the location of the pathologic lesions. In pelvic infections due to streptococci the possibility of metastasis from distant foci must be considered. The history of childhood infections, abortions, instrumentation, curettage, lacerated perineum or cervix are significant and indicate an infection of streptococcal origin. A previous urethritis, irritating leucorrhœa and a former Bartholin's points to a gonorrhœal infection.

The location of streptococcal pelvic lesions is usually in the connective tissue area and in the broad ligament low down beside the cervix. The tubo-ovarian mass is higher up and does not blend with the pelvic wall and uterus as does the mass in the streptococcal infection.

No case should be operated upon in the acute stage as Simpson, Clark and others have long ago shown.

In the acute cases coming to the author's service the following routine treatment is followed out. A blood count and an examination sufficient to determine the condition is made; the patient is placed in the Fowler position, a large catheter is bag to the abdomen, continuous saline proctoclysis instituted and morphine sulphate one sixth of a grain administered every five hours to obtain and maintain intestinal quietude. All foods and liquids are withdrawn by mouth. Nearly all cases become quiescent in about forty-eight hours.

Operation is undertaken after the patient has been normal ten days or more. A few cases have been operated upon in the acute stage when there was considerable doubt about diagnosis and the Coffey quarantine pack used with great satisfaction.

Decision as to what should be removed and what allowed to remain has to be decided by the pathologist present and a consideration of the individual case. In the event that both ovaries must be sacrificed the uterus and cervix are usually removed particularly in gonorrhœal infections. This eliminates the possibility of further distressing discharge from either uterus or cervix.

## EXTERNAL GENITALIA

Cullen T. S. *Adenomyoma of the Rectoaginal Septum* B. H. J. H. H. Ph. S. H. P. 975 343

The condition is described as follows. Adenomyoma of the rectovaginal septum is a diffuse growth consisting of non-striated muscle and fibrous tissue with large or small areas of mucosa identical with the mucosa of the body of the uterus scattered throughout it. The mucosa is elastic at the menstrual period and as the cervix is usually no escape for the blood, the gland spaces tend to become cystic and are filled with blood or there is hæmorrhage into the matrix of the tumor. The tumor in the beginning is very small and stationary in the vaginal vault just behind the cervix or it may be recognized as a round or irregular thickening not over centimeter in diameter and usually attached to the cervix. The growth gradually spreads in a diffuse and irregular manner involving the adjacent anterior rectal wall and spreads into one or both broad ligaments until finally everything in the pelvis may be firmly glued into one mass.

In a previous paper Cullen made a tentative classification. The grouping he believes may be retained until our knowledge of the subject has been augmented. The classification with the num-

ber of cases brought up to date is as follows (1) small adenomyomata lying relatively free in the rectovaginal septum (2) adenomyomata adherent to the posterior surface of the cervix and at the same time to the anterior surface of the rectum (3) adenomyomata gluing the cervix and rectum together and spreading out into one or both broad ligaments (4) adenomyomata involving the posterior surface of the cervix the rectum and broad ligaments and forming a dense pelvic mass that cannot be liberated

As can readily be inferred the symptoms will in general depend upon the manner in which the growth extends. When small it occasions little trouble. Extension to the rectum may or may not be followed by pain. Implication of the pelvic nerves in the diffuse growth may cause much neuralgic pain and encircling of the ureters by the growth may bring about unilateral or bilateral hydro ureter with renal pressure symptoms at the menstrual period.

Menstruation in some cases occasions much pain

If the mucosa of the growth has projected into the vagina there will be an escape of menstrual blood from the posterior vaginal wall at the catamenial period as was noted by the author in one case in which the patient menstruated although her uterus had been removed two years before and in those cases in which the glands of the adenomyoma extend through to the rectal mucosa there will naturally be some escape of menstrual blood from the bowel at the period.

In all of the previous cases the tumor occurred during menstrual life. The four cases recorded by the author in this paper offer no exception to the rule. The patients were 28, 37, 27 and 43 years of age respectively. Cullen states that nothing is known as to the origin of these tumors but it is certain that their glandular elements are identical with those of the mucosa of the body of the uterus.

The article is profusely illustrated with drawings by Broedel and by microphotographs.

GEORGE E. REILLY

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Williams J W A Histologic Study of Fifty Uteri Removed at Caesarean Section *Br J J*  
Hpk H p 917 v 335

During the past twenty years the author states that in his service in the Johns Hopkins Hospital they have had occasion to amputate the body of the uterus supravaginally a little to the stump extra-peritoneally in 5 cases following delivery by caesarean section. In each instance the specimen was preserved and subjected to careful histological examination.

The study of the comparatively large material yielded important information concerning number of question more particularly concerning the mechanism of the separation of the placenta and of the fetal membrane the amount of decidual retention immediately postpartum the vascular changes in the placental site the reaction of the uterine muscle the occurrence of a tendency to infection in patients who had been lying in labor or who had been repeatedly examined by palpation neglecting rigorous hand disinfection and finally concerning the characteristics of the catarrh of the uterine mucous membrane and its bearing upon the correctness of the dictum on the contrary always a carcinoma.

The author believes that a histological finding will prove of interest more particularly as they were obtained in a relatively new case of teaching they have the material of the statement concerning the third stage of labor contained in the textbook a too arbitrary and general.

The operation as reported to in many patients requires a considerable increase in section well seen in those suffering from so-called heart lesions in whom a marked increase in the force of the heart to jeopardize the patient's life and in the case of certain feeble-minded or profoundly deaf-mute individuals in whom repeated pregnancies seemed undesirable from an economic standpoint.

Analysis of the series of cases which the operation is undertaken for the following indications: repeated miscarriages rupture of the uterus 5 cases serious hematemesis 4 cases atresia of the cervix 3 cases intramural hemorrhage associated with premature separation of the placenta case myoma of the uterus case atonic hemorrhage case pregnancy in a rudimentary horn 1 case a total of 37 cases leaving a balance of 3 cases in which the operation was undertaken for various other indications. The author acknowledges that

up vaginal amputation may have been unnecessary in a small number of the latter group of cases but if the great majority he contends that it was a fully justifiable procedure.

Before the author takes up the analysis of the histological findings he considers in detail the structure of the pregnant uterus at term of the placenta and of the membranes outside the placental site.

He tells us that the old fast rules cannot be followed in concerning the cleavage during the third stage of labor concerning the amount of decidua which will be retained at the placental site or elsewhere in the uterus. In some cases cleavage occurs immediately in the puffy layer less frequently in the compact layer but very often it was irregular in following the puffy layer in some places and the compact layer in other. Consequently the amount of decidua retained varied greatly in different specimens and illustrations were observed showing in a thick layer on the one hand to minute little fragments between the serrated margins of the muscularis on the other.

Though the fact that in not few specimens it is impossible to locate the placental tissue properly and that its location could only be determined by microscopic study. In the uterus the amount of decidual tissue retained nor the increased vascularity enables a determination of which in the author's experience depended almost entirely upon the recognition of the total dilatation or of certain vascular changes which only occur in this locality.

In considering the structure of the full term pregnant uterus attention is directed to the thickness of the muscular wall and to the fact that the rhesus had lost the felt like structure characteristic of early pregnancy and had become a ringed narrow parallel strip. Coincidentally with the emptying of the uterus at the time of labor and the great increase in the thickness of its wall the arrangement of the muscular fibers underwent a change and microscopic examination showed that the individual muscle cells had become considerably diminished in length and increased in thickness. Coincidentally with this change the muscular bundles lost their more or less parallel arrangement and pursued a more or less complicated course. In many instances the fibers were markedly curved suddenly bent at acute angles and in general interlaced in such a way as to make it impossible to describe their course.

In 8 instances the indication for the removal of the uterus consisted of a frank intramural infection. In all of these cases microscopic examination

revealed the existence of acute inflammatory changes in the decidua. In every instance the process was most intense in the lower uterine segment thus indicating that the infection had ascended from below. In a number of instances the placental site was involved in the process and there was every probability that a considerable number of the patients would have presented severe if not fatal infection in the puerperium had the uterus not been removed and thus additional evidence is afforded of the wisdom shown in adopting a radical course. In addition to the eight cases mentioned definite inflammatory changes were noted in 12 other specimens. These were all derived from patients who had been examined by outside physicians before admission to the service or in whom for one reason or another interference had been deferred until late in labor. In a number of these specimens appropriate methods of staining enabled the author to demonstrate the presence of streptococci in the tissues but in others such bacteriologic evidence could not be adduced.

The author considers the fact very impressive that inflammatory changes were present in 40 per cent of the specimens and it serves to demonstrate anew the dangers of conservative cesarean section when performed at any other than the optimal time namely at an appointed date during the last days of pregnancy or within a few hours after the onset of labor in patients who have recently been examined by an appropriate technique. In this group of cases at least he feels that the disadvantages incident to permanent sterilization have been more than compensated for by the increased saving of maternal life resulting from the radical operation.

In this series of specimens are included 10 uteri which had already been subjected to cesarean section upon one or more previous occasions and it is interesting to study the cicatrix in connection with the frequently made statement that it always constitutes a locus minoris resistentiae and thus affords justification for the dictum once a cesarean always a cesarean. In eight of the specimens one of which had been subjected to two and another to three previous sections it was difficult to find the old cicatrix by examination with the naked eye and the only indication of its existence was afforded by the presence of slight vertical depressions upon the external and internal surfaces of the uterus. In these specimens microscopic examination revealed the entire absence of scar tissue in the uterine wall and showed that the muscle fibers extended across the site of the old incision as if it had never existed. In other words examination showed that following the section the uterine wall had been restored to its integrity and that it offered little more chance for rupture than if a previous operation had not been performed. It is interesting to note that in this series of cases the convalescence from the previous operation had been uneventful and uncomplicated.

The author believes that the evidence at his

disposal indicates that the healing of cesarean section wounds is generally satisfactory provided that the convalescence has been normal and ordinarily does not call for a repetition of the procedure unless definitely indicated by the existence of extreme disproportion or some other condition. On the other hand in patients in whom the convalescence has been abnormal it is probable that the cicatrix will be greatly thinned out and will offer a locus minoris resistentiae. In such cases a repeated cesarean section may be indicated for the express purpose of avoiding a subsequent rupture. His experience however showed that this is not inevitable and that even should it occur satisfactory results should follow prompt operation.

For practical purposes therefore he concludes that the behavior of the cicatrix can be regarded with equanimity provided the previous convalescence has been normal but when it has been disturbed there is a reasonable probability of the occurrence of rupture and such patients should be kept under the closest observation during the last months of a succeeding pregnancy.

GEORGE F. BELLBY

#### LABOR AND ITS COMPLICATIONS

Zinke E. G. The Causes and Surgical Aspect of Rupture of the Uterus During Labor. *Tr South St g Ass St Augustine* 1917 Dec

The most frequent cause of rupture of the uterus is a prolonged second stage of labor due to obstruction of either maternal or foetal origin. The appearance of the contraction ring is the most significant sign of an impending rupture of the uterus.

When rupture of the uterus is not the result of an imperfectly united cesarean scar extirpated tubomyomectomy etc but is solely the consequence of an obstruction its clinical picture is clear and definite. The symptoms are easy of recognition and the rupture may be anticipated and promptly diagnosed if the attendant is upon the scene at the time.

The management of rupture of the uterus during parturition differs according to the completeness or incompleteness of the rupture the amount of hemorrhage the condition of the mother and according to whether the patient is in a hospital or at home. If the rupture is incomplete the child may be extracted per vaginam if the hemorrhage is not severe or when the patient is in her home if the patient is in a hospital an abdominal section quickly performed may save both lives even if the loss of blood has been great. If the rupture is complete and the child is alive and vigorous an immediate abdominal section is indicated no matter what the condition of the mother or whether she is at home or at a hospital. If the child is dead and the mother's condition is hopeless it is of no avail to interfere surgically under any circumstances. If the child is dead and the mother's condition fairly promising the child should be at once de-

livered through the abdomen and the rent in the uterus and peritoneum repaired or if an infection exists a hysterectomy should be performed. It is understood that this latter treatment promises little for the mother when it must be carried out at home but that her life may often be saved if the operation is performed in a hospital.

### PUERPERIUM AND ITS COMPLICATIONS

Hirst B C The Treatment of Puerperal Pyæmia  
S g Gy Obst 97 45

Hirst was formerly opposed to operative treatment for pelvic thrombosis first because of the difficulty in diagnosing the condition secondly because he considered the thrombosis a conservative action on the part of nature which should not be disturbed and thirdly because nothing apparently could have been gained in all his cases operated upon abdominally for puerperal infection during the past twenty five years.

He gives a brief history of 37 cases of different types of infection operated upon in the last five years. While the abdominal incision offered a good opportunity for observation the case seemed to be one which would gain by the ligation of the pelvic veins. Also the mortality has been exceedingly high in such operations. The author now considers operative treatment more favorably and will look for symptoms of pelvic thrombosis in cases of puerperal pyæmia.

Among 37 cases operated upon at the maternity clinic there was 13.5 per cent mortality. The indication for operation in practically all cases was the presence of a pelvic mass with the history of infection.

Two cases had general peritonitis and were hopeless. The location of pain was as follows: in the left lower abdomen in 13 cases, in the right lower abdomen in 6, in the bilateral lower abdomen in 11, location not given in 7. The time intervening between delivery or miscarriage and operation ranged from three days to five months, in the majority of cases the interval was from one to three weeks.

L R GOLDSMITH

Alcott R H Postpartum Hæmorrhage and Its Treatment (L h m a g s d l p t p t u m y  
t t m nt ) f i d g p b t y p d t  
B l 97 3

To combat postpartum hæmorrhage Alcott says three procedures are available: the elastic ligature of the trunk, or the method of Ribera Momburg, Duerrhens's utero-cervico-vaginal tamponade and blood transfusion.

The elastic ligature of the trunk is only an adaptation of the method of aortic compression first put into practice by Ribera and then perfected and generalized by Momburg. It consists in effecting compression of the abdominal aorta indirectly by means of a band or tube of rubber twisted strongly around the waist and providing a constriction which effects hæmorrhage in all parts of the body situated below the ligature. It may be practiced with or without anaesthesia. The method was first applied in 1910 for hæmorrhage due to placental æmia.

In the majority of cases the author thinks that Duerrhens's tamponade suffices to stop the loss of blood. Blood transfusion not only has an important hæmostatic value but also has an admirable effect on the general state.

W A BRYAN

# GENITO-URINARY SURGERY

## KIDNEY AND URETER

Chetwood C H Renal Misplacement Renal  
Hæmaturia and Renal Infection *Brit J*  
*Surg* 1917 ix 73

All kidneys are movable physiologically in a vertical plane varying in normal limits sometimes as much as five centimeters. Movability in a horizontal plane is more apt to give rise to symptoms. The severity of symptoms does not bear a direct ratio to the degree of mobility. Various causes for undue mobility have been ascribed the chief cause being the absence of fibrous tissue bands by which the kidney is attached to the back of the abdominal cavity. The author finds from the examination of a series of cases that 50 per cent complained of pain alone suggesting kidney distension. In over 10 per cent there was evidence of actual obstruction producing stasis in the form of hydronephrosis or pyelitis. In over 5 per cent there was added infection. In 33 per cent there were gastro-intestinal disorders.

The symptoms of misplaced kidneys may be divided into (a) those produced within the organs themselves and (b) those produced in adjacent organs and other parts of the system.

The first and most likely local result is acute congestion due to torsion of the kidney upon its vessels and upon the ureter and thereupon follows the sequence of acute hydronephrosis with the symptoms of Dietl's crisis.

Another result of torsion is hæmaturia transient or more or less permanent depending upon the degree and persistence of the torsion. Interference with renal circulation causes congestion and according to the extent of the latter tension ecchymoses and the appearance of blood in the urine.

The extrinsic causes may be summed up as all of those causes that produce obstruction to the blood supply and to the urinary outflow i.e. renal mobility and torsion external growths and abnormal blood vessels. The intrinsic causes of renal hæmorrhage are assumed to be dependent upon renal congestion. Renal congestion predisposes to infection and kidney mobility has a relationship to both hæmorrhage and infection.

Every movable kidney is a latent source of infection the degree of which depends upon the nature of the latter and the susceptibility of the tissue. The practical deductions from the inter-relationship of renal mobility hæmorrhage and infection are as follows:

In the case of movable kidney if there be no interference with circulation or the flow of urine no symptoms are likely to be produced in the kidney.

Pain is an indication of renal distension.

Descent alone of the kidney is not sufficient to produce symptoms growing out of interference with blood supply or urine outflow. There is usually added the element of torsion or external pressure as a determining cause of symptoms.

Interference with emptying of the pelvis of the kidney as in the bladder is a frequent contributing factor toward infection or hindrance to the cure of an existing infection. Therefore whatever impairs the musculature of the pelvis or ureter may be considered as a predisposing cause of infection.

Bleeding is always due to an impairment of the continuity of the walls of the blood vessels which may be either mechanical (traumatic) or inflammatory (infective).

Evidence of the co relation of these three phases of kidney disorder are the simple rules upon which the treatment of any one of these conditions individually or of all of them collectively may be based. The principal demands are normal fixation and adequate drainage. When these fail nephrectomy may be necessary but should be contended against as far as possible. H G HAMER

Young E L Jr Clinical Diagnosis of Lithiasis  
of the Upper Urinary Tract *J Am Med Ass*  
1917 lxx 1490

The absolute diagnosis of stone in the kidney or ureter without the use of the roentgen ray is impossible. A stone may present so called typical symptoms or present no symptoms whatsoever again many patients with symptoms suggestive of renal or ureteral stone and many of them with pathological urines are finally found to have some other renal disease or disease of some other structure. A good roentgenogram therefore is the best evidence of presence or absence of stone by which method with good technique only from one to six per cent are not found.

Stereoscopic plates with opaque ureteral catheters in place are necessary to prove the presence of ureteral stone and to distinguish it from extra ureteral shadow producing structures. The wax tipped catheter has a very limited value in the case of ureteral stone and an even more limited value in pelvic stone due to inaccessibility with stone in the lower calyces.

Young reports no success in rendering stones more prominent in roentgenograms by the direct application of collargol or other opaque media through the ureteral catheter.

Among the most common confusing conditions with renal and ureteral lithiasis are seminal vesiculitis and certain orthopedic abnormalities such as





grain of morphine and one fiftieth of a grain of eserine as a preventive against postoperative distension are insisted upon by the authors

In the first case reported right nephrectomy for renal calculus was done. During the division of the adhesions about the upper pole a clamp slipped and an active arterial hemorrhage resulted. Firm pressure with packing and the deep application of clamps controlled the hemorrhage. The postoperative course was normal for the first twenty-four hours, then restlessness, fast pulse and abdominal distension came on rapidly. An enterostomy gave fair relief of distension, no obstruction was found. The distension rapidly reappeared with fecal vomiting and death occurred four days after the first operation. The autopsy showed numerous foci of necrosis in the pancreas and at the base of the mesentery widespread and destructive fat necrosis; the latter found also in the fat of the ascending colon.

The second case was a pyelotomy for a right renal calculus. Considerable difficulty was encountered due to firm adhesions at the upper pole. These were divided between clamps with no unnecessary hemorrhage. The following day there was marked distension of the abdomen and a rapid pulse, poor in quality. Usual measures to move the bowels proved ineffectual, persistent nausea and vomiting was uncontrolled by gastric lavage. An enterostomy was followed by relief of distension on the second day, after which the patient gradually became weaker and presented a general picture of inanition. About a month later sugar appeared in the urine with negative findings for acetone and diacetic acid and the patient was put on pancreatic calcium lactate and a modified soft diet. Rapid gain in strength followed and the patient was discharged cured. Here a definite interference with the normal functioning of the pancreas took place without any extensive extravasation of secretion into the tissues about the pancreas, which latter is almost invariably and rapidly fatal.

In the third case nephrectomy was done for hypernephroma. There was intestinal obstruction requiring enterostomy, due probably to traumatism to both pancreas and the adjacent intestine. Recovery followed.

The foregoing facts emphasize the importance in renal surgery of care in hemostasis and good exposure with the avoidance of violent retraction and traumatism.

H. W. PLAGEMAYER

Thomas B. A. and Birdsall J. C. Comparative Results of Various Functional Kidney Tests Based on a Series of Cases. *J. Am. M. Ass.* 1917, LIX, 1747.

In order to obtain more accurate information upon the comparative value of the most popular tests for determination of renal function, the authors subjected each of a group of patients impartially to the following ten functional kidney tests: indigocarmine, phenolsulphonphthalein, total non pro-

tein nitrogen of blood, urea nitrogen of blood and urine, Doremus urea test, Ambard's urosecretory constant of blood and urine, creatinin of blood and cryoscopy of blood and urine.

A description of the technique employed by the authors in the performance of these tests discloses various modifications from the routine, most important among which are: Quantitative determinations of indigocarmine are made for three hourly intervals; the Dubosq or a colorimeter recently improved by the authors being utilized; and the greatest reliance is placed on the index of elimination, i.e., the ratio of output for the first and third hours in the performance of the phthalein test. It is deemed more rational, scientific and accurate to regard the quantitative output for the first hour from the time the drug is administered as against the quantity commonly regarded as eliminated for the first hour, comprising that for the hour after elimination begins plus the time required for it to appear.

The comparative results of the various tests which are divided into those of retention and excretion are tabulated in normal and pathologic cases upon the analysis of which the authors formulate the following conclusions:

Indigocarmine was found to be more trustworthy and practical than phenolsulphonphthalein. Wherever the performance of more than one test appears to be desirable for confirmatory judgment, phthalein, total non protein nitrogen or urea nitrogen may be utilized. Ambard's quotient possesses no actual advantage over indigo or phthalein. Cryoscopy of blood and urine is valueless. Creatinin of the blood and urine, urea nitrogen either per 100 ccm. by the urease or by the Doremus sodium hydrobromide method demonstrate results so variable as to be unreliable.

Finally the authors accentuate the superiority of indigocarmine over all other functional kidney tests because it is not only the most practical test but is unsurpassed in reliability, whether employed for unilateral determination by the method of chromo ureteroscopy or for total function through reliance chiefly on the index of elimination.

M. KROTOSZYNER

## BLADDER URETHRA AND PENIS

Gerrigthy J. T. The Results of Treatment of Bladder Tumors. *J. Am. M. Ass.* 1914, LIX, 1336.

Bladder tumors are classified as benign papilloma, malignant papillomata and papillary carcinoma. Papillomata are a pedunculated papillary form of villous tumor springing from the mucous membrane of the bladder, composed of a branching connective tissue framework lined by epithelium in several or many layers. There is no characteristic appearance in either group. Benign papillomata respond well to the electric current and disappear; malignant types are often stimulated to greater growth. Microscopic examination is not absolute.

proof of benignancy as the portion examined may not have undergone the malignant changes which have taken place in some other portion of the tumor. If the epithelium has broken through its basement membrane and invaded the axis of the papilla on the main stalk the papilloma has become carcinomatous.

In a series of 65 cases of papilloma 34 were treated by fulguration alone the majority with the Oudin current 9 per cent recurred only one which proved to be carcinomatous failing to respond to further treatment. Radium radiation has been used for two years in connection with the electric spark in 13 cases with 27 per cent of recurrences. Its value has been demonstrated preparatory to either fulguration or resection when a complete cystectomy or prostatectomy otherwise would have been necessary. Suprapubic removal was carried out in 10 cases. The 6 removed by the actual cautery had recurrences the 4 by resection none.

Neither fulguration nor radium alone or in combination of any value except to give symptomatic relief in a series of 56 cases of papillary carcinoma so extensive as to preclude excision. Excision in 8 cases gave one operative death.

The presence of infiltration in the surrounding bladder wall changing a pedunculated tumor to the sessile type necrosis oedema or bulge above the margin and small nodules beyond the main growth are indicative of carcinoma. Marked induration of the bladder wall felt either through the abdominal wall rectum or agnathically provokes malignancy. Histologic evidence of cancer in an excised specimen demands radical measures. The author believes that the information obtained counterbalances the theoretically increased risk of metastasis by excision. A severe intractable cystitis and failure to respond readily to fulguration and radium point unmistakably to cancer. Metastases are usually present in a carcinoma which deeply infiltrates the bladder wall.

The author concludes that early recognition and resection of carcinoma are essential fulguration and radium having been precluded. Recurrences after resection respond well to fulguration. Radium in the early stages of malignant papilloma. Radium has rendered malignant papilloma more responsive to fulguration in some of the author's cases. The development of endovascular methods is a most possible cure in practically all cases of papillomatosis. H. W. P. C. F. E. V.

Brown J. P. L. g. V. ical Calulu J. Im U  
1 1971 686

Brownemoed by suprapubic cystotomy in a girl of sixteen an mmms calculus 4 inches in length and 3 inches around several different circumference which had grown around a hairpin as a nucleus. The hairpin was lying in the bladder in a widely extended obtuse angle and as covered with the deposit to within about a quarter of an inch of each end. The patient made an uneventful recovery. M. K. OTOZYNE

# Young H. H. and Stone H. B. The Operative Treatment of Urethrorctal Fistula Presenting as a Method of Radical Cure J. U. I. 97 39

The authors base their discussion on a group of 11 cases of urethrorctal fistula in each of which trauma in the nature of a surgical operation was the underlying factor. These operations comprised 1 perineal lithotomy 4 incisions for drainage of prostatic abscesses and 6 attempts at perineal prostatectomy.

The various steps of the operation are amply illustrated. The authors describe it as follows:

First suprapubic drainage of the bladder is established with the patient in a dorsal position. The patient is then shifted to the exaggerated lithotomy position. A curved shaped incision beginning in the midline of the perineum about 3 cm anterior to the anal margin is carried backward to the scrotal margin and then encircles it at the mucocutaneous juncture. Through the circular part of this incision the mucosa of the rectum is dissected free all around until a cylinder of the membrane is stripped from its attachment well above the point at which the rectal orifice of the fistula opens the fistulous tract of course being divided transversely in this process. This ascending dissection of the bowel is carried upward until the fistula mucous membrane is loosened to permit the pulling of the segment containing the fistulous orifice well out of the anus the orifice and a small margin of normal mucosa above it and all that below lying outside the skin level and later being excised. This part of the procedure may be described as an aggration of the Whitehead principle in operating for hemorrhoids.

An important point of some practical importance consists in beginning the dissection of the mucosa at the posterior or dorsal part of the circle. Not only is it easier to find normal planes of cleavage here where there is no scarring but the field is less obscured by hemorrhage than would be the case if the anterior dissection at the clitoris blood then runs down over the posterior half of the anus.

Next the structure of the perineal body are divided through the straight line in the midline the handle of the retractor so as to expose thoroughly the urethral nodule of the fistula. It should be noted here that in the first three of the cases the sphincter muscle had been cut in the midline anteriorly in previous attempts at cure of the condition so that this part of the incision actually divided something but scar tissue in this case. This scar tissue in the scrotal area is dissected away laterally sufficiently to expose the nodules of the sphincter anismus the levator ani and the lesser muscles of the perineal floor. In the rest of the cases with no exception the internal sphincter muscle was divided in the midline not only to allow a better exposure of the urethral opening and the muscle then repaired as in the first three cases. In one case it was not considered necessary to cut the sphincter at all.

The edges of the urethral fistulous opening then exposed are freshened and brought together with catgut sutures over a sound which has been previously passed through the urethra. These sutures do not penetrate the surface of the urethral mucous membrane. The levatores fascia and smaller muscles are then brought together by interrupted catgut sutures across the midline of the perineum in several layers reconstructing the perineal body much as is done in gynecological operations for relaxed vaginal outlet. Finally the sphincter ani is restored by uniting its ends with a mattress suture of catgut and the midline incision is closed with interrupted sutures. The last stage in the operation consists in the excision of the protruding cuff of rectal mucosa in which the fistulous opening lies and the union of the lower end of the rectal tube to the anal skin margin. This is done by interrupted silk sutures after four submucous subcutaneous sutures of catgut have been placed at quadrant points to help anchor the bowel in place.

It will be seen that there are four essential principles in this procedure. The first is the protection of the repair from leakage and muscle spasm by diverting the urine from the urethra through the suprapubic drainage. This has been emphasized in the publication of a previous operation for the same purpose by Young. The second principle is the complete ablation of the damaged portion of rectal wall and the reposition of perfectly sound mucosa quite to the skin edge. The third element in the operation is the closure of the urethral orifice and the final essential is the interposition between rectum and urethra of a solidly built up perineal body. J D BARNEY

## GENITAL ORGANS

Lowsley O S. The Embryology of the Prostate and Its Relation to the Surgery of Obstructive Conditions. *Am J Surg* 1917 LXVI 276

The embryology and morphology of the prostate is detailed by the author before discussing the surgical procedures in attacking pathological conditions.

The principal conclusions are as follows:

1. An understanding of the embryology and morphology of the prostate is essential for its proper surgical treatment by any method. In Young's perineal operation it is essential to make the incision entirely through the posterior lobe into the lateral lobe cavities before beginning the enucleation; otherwise the instrument will be led into the capsule of the gland and proper reparation cannot be accomplished. The intra urethral suprapubic type of operation is preferable to the method advocated by Freyer on account of the fact that by the former there is less derangement of the anatomical structure.

2. The posterior lobe of the prostate is never removed either by Young's perineal method or by the suprapubic route.

3. The ejaculatory ducts in practically every instance are not removed in a prostatectomy because of the fact that they are firmly attached to the lamella of connective tissue which separates the posterior lobe from the rest of the prostate. In the suprapubic operation the upper portion of the verumontanum is usually torn away down to the point of entrance of the ejaculatory ducts but on account of their structural qualities the orifices themselves are usually uninjured.

4. The comparatively late and high involvement of the rectum in carcinoma of the prostate is due to the presence of the fascia of Denonvillier and the intravesicular fascia.

5. The subservical group enlargements are of frequent occurrence and of great importance on account of the position which they occupy. Excision is best done by Young's punch or a suprapubic cystotomy although the high frequency current and Chetwood's galvanocautery method are advocated by some adherents. H G HAMER

Young H H. Carcinoma of the Prostate: an Improved Technique for Radical Excision with Preservation of Urinary Control. *J Im U* 1ss 1917 LXV 1591

From a large number of collected cases of prostatectomy it is found that from 15 to 5 per cent of the specimens removed show definite microscopic carcinomatous tissue. In 1905 Young presented the technique for the radical removal of the prostate in clinically diagnosed carcinoma. By this technique it is demonstrated that such carcinomata are radically cured but most of the patients thus cured suffer from incontinence of urine thereafter. For three years Young has been improving on his old technique so that now he removes these tumors with a radical cure and no resultant incontinence.

Just in front of the anterolateral prostatic fascia lies that great plexus of blood vessels the plexus of Santorini and the important nerves of the perineum the external vesical sphincter and triangular ligament. The modification of technique consists essentially in protecting this anterolateral prostatic fascia while freeing the lateral and anterior aspects of the prostate thus obviating dangerous hemorrhage as well as keeping intact the innervation and vascularity of the perineal muscles the external vesical sphincter and triangular ligament.

The entire prostate with its capsule and the prostatic urethra a portion of the membranous urethra a cuff of the bladder including most of the trigone both seminal vesicles and from six to seven cm of each vas deferens with the intervening and surrounding tissues are removed *en masse*. The anastomosis is made between the bladder and remaining portion of the membranous urethra.

The wounds heal with no resulting fistulae while the patients have a good bladder control and practically normal urination. Excellent drawings accompany the description. HARRY CULVER

Castano A Hematocyst of the Prostate (Lyon)  
 h m t que de la p o t t ) J d l ed t t  
 Pa 97 65

Castano reports a case of ectasia of the prostate in a patient aged 67 years who was a diabetic with prostatic hypertrophy. Examination disclosed the existence of a tumor as large as an orange which completely blocked the rectum. It was smooth and soft but not capable of depression. A diagnosis of advanced prostatic hypertrophy was made. The case was treated for fifty days and owing to persistent urinary and fecal disturbance the patient was then operated upon.

On opening the bladder a large round tumor was found to occupy two thirds of the organ. After several attempts the tumor was able to be extirpated. The tumor at its lower part but the tumor broke and filled the bladder and wound with black blood. At the same time the tumor disappeared. After drying the wound the author could estimate its dimensions somewhat and in the midst was a well marked depression recently occupied by the fluid. The operation was terminated and the patient made an uneventful recovery.

The author believes that the etiology of this process was undoubtedly an intraprostatic hemorrhage due to diabetes. W. A. Br. A.

Shopshire C W and Watterson C Suprapubic  
 lotomy with Melanoid Drainage  
 A. J. M. J. 98

The authors describe a suprapubic prostatectomy with the use of Kells drainage machine giving the history and results in one of the cases.

The author states that without mechanical drainage the voiding depends on pressure to produce sphincter almost impossible to prevent leakage with the mechanical method of incision and necrosis of tissue but with mechanical drainage the bladder is kept dry all the time. The incision of any bladder drainage is as much in the form of drainage tip to be used in the bladder as in the apparatus producing the suction and to be of value the action of tip must be so arranged that sufficient vacuum is produced to remove urine mucus and blood clots from the bladder but not strong enough to produce enough vacuum with the bladder to cause hemorrhage or pain. Another objectionable feature that should be overcome is:

The Kells constant drainage is a supply with various sizes of drainage tip and is the ap-

paratus that has proved of greatest value in the hands

In conclusion the authors say that

1 Mechanical drainage is of the greatest value in suprapubic operations

2 It must be noiseless and reliable in its workings

3 The ideal machine is one in which the working is governed by vacuum and in which a certain fixed amount of vacuum is maintained. LOUIS GROSS

# MISCELLANEOUS

Jacobson V C A Case of Multiple Myelomata  
 with Chronic Nephritis Showing Bence Jones  
 Protein in Urine and Blood Serum J. U. I.  
 9 6

The author reports a case of multiple myelomata with associated disease of advanced nephritis and retention of a large measurable amount of Bence Jones protein in the circulatory blood. This is probably the first case reported with definite chemical evidence of retention with an advanced nephritis. The elimination of phenolsulphonphthalein was zero in two hours. The 24 hour specimen of urine showed 0.7 per cent Bence Jones protein. The Wassermann test of the blood was negative.

By a complete series of qualitative tests the urinary and blood results were determined to be the same substance. For the quantitative determination of the Bence Jones protein in the blood a modification of the Folin Denis method for estimation of the urinary protein was used. By this method the blood serum obtained from the heart at autopsy was found to contain 46 per cent of the Bence Jones protein. The urinary protein was 0.8 per cent either at and two days previously before death by the ordinary Esbach procedure. In these results is seen a case in which the Bence Jones protein was demonstrated in the blood stream when as a general rule there seems to be a selective action of the renal epithelium in excreting a large amount of abnormal protein with a high nitrogen content.

The author gives the reasons for the opinion of the Bence Jones protein that it is probably derived from the blood through the action of enzyme from the abnormal plasma cells of the bone marrow. The tissue foreign protein has been proven by Ellinger, Stokvis and Manthes who injected it into dogs intravenously and periretally finding it excreted unchanged in the urine.

H. W. P. A. GENEVE

# SURGERY OF THE EYE AND EAR

## EYE

Rush C C and Schaeffer J P Supernumerary Orbital Muscles *Arch Ophthalm* 1917 xlii 5 4

In dissecting an adult orbit a slender but well defined supernumerary muscle was found which had a common origin with the levator palpebrae superioris. At a distance of thirty mm from its origin it spread out into a fan shaped attachment the central fibers of which were attached to the upper and lower borders of the trochlea, one lateral expansion was directly continuous with a similar expansion from the levator and a lower was attached to the superior border of the rectus medialis. Traction upon the muscle gave a feeble internal movement of the eyeball.

The authors discuss the embryology of the orbital muscles, review the literature and state that the probable explanation of their finding is an excessive differentiation of the premuscle mass which normally divides into a definite number of elements.

S S Howe

Shannon J R Aneurism of the Internal Carotid Artery and Its Effect upon the Vision *Arch Ophthalm* 9 7 xlii 5 8

The case of a woman of fifty two is reported who with an excellent previous history became blind in the right eye within a short time and four months later vision in the left eye had decreased to 20 50. There were at no time paralyses or cerebral symptoms of any moment. She was examined by oculists, neurologists and surgeons without a diagnosis being made. A slow growing non malignant tumor at the base of the right frontal lobe was deemed probable and to save the remaining vision in the left eye a decompression operation was done with negative findings and result. The patient recovered from the operation but died two and a half months later of cerebral hemorrhage.

Autopsy showed aneurism of the right internal carotid artery near the circle of Willis.

The author discusses the studies and reports of Beadles, Weir Mitchell and Bramwell and concludes with the statement that the condition is entirely unsuspected before the fatal apoplexy in almost every case.

S S Howe

Bonnefont G and Fromaget H Researches on the Histological Evolution of Aseptic Scleral Resections (Recherches sur l'évolution histologique de sections sclérales aseptiques) *Ann d'otol* 1917 cli 505

The author has made experimental sclerotic operations on rabbits and has made microscopic examinations of the cicatricial tissue after operative

section. The conclusions drawn from this experimental research are:

1 Scleral tissue follows the general laws of cicatrization.

2 The corneal region losses of substance are rapidly obliterated. The fibrinous clot of the first stage gives place after the third day to an organization. The agent is the fibroblast cell the origin of which is obscure. After two months the continuity of the ocular shell is re established by tissue more dense and less regular than normal sclera. Inclusion of foreign tissue can alone stop this proliferation. When these obturator tissues are impermeable the ocular tension is not modified. When the tissues are permeable hypotonia by filtration is produced.

3 In any case the wound does not remain gaping there is never a scleral fistula. Recent histological examination of sclerectomized eyes fully confirms the experimental results. In even aged glaucomatous patients the sclerótica proliferates very rapidly and fills the orifice unless some heterogeneous tissue is interposed to prevent proliferation of the scleral stumps.

4 Simple regular sclerectomy experimentally has only a temporary hypotonic action since it rapidly results in a scleral impermeable cicatrix. It favors the enclosure of the iris and this complication is without doubt at the origin of acute post operative glaucoma.

W A BRENNAN

## EAR

Rozier I Wounds of the External Auditory Canal (Recherches sur les lésions auditives externes) *Revue de laryngologie* Paris 1911 xlii 361

Rozier states that wounds of the auditory apparatus are very frequent in war. In the otorhinolaryngologic war section to which he was attached of 13 000 patients that were treated since the beginning of the war nearly 9 000 had ear troubles. Such injuries are due not alone to direct projectiles but also to the effects of explosions. The author treats especially of stenosis and consecutive atresia of the canal. The operative treatment depends on whether the stenosis or atresia is simple and without any neighboring lesion or whether it is complicated with lesions of the middle ear, old or recent otitis media or a traumatic mastoiditis. In the first case the author makes a simple autoplasty of the membranous canal. In the second a petromastoidectomy opening up is done followed by the usual plastic procedure.

Rozier gives the histories of eight typical war cases. From their study he finds that in wounds involving the auditory canal a cicatricial tissue is



mouth There was complete facial paralysis paralysis of the right vocal band and great difficulty in swallowing Hearing was not lost and at no time were the glands of the neck much enlarged or tender The patient grew rapidly worse after surgical interference and died this has been the usual course followed by most of the cases that have been reported in the literature An autopsy was made and the tissues re examined confirming the antemortem diagnosis

In such cases cures can only be accomplished by an early diagnosis followed by an early extirpation of the cancerous growth

JAMES J KING

Hoyell M Gastro Intestinal Sepsis a Cause of Meniere's Symptoms *Med Press & Circ* 1917 civ 403

In this discussion of Meniere's symptoms the author confines himself to those attacks of dizziness and tinnitus which occur in patients suffering from middle ear disease and which appear without apparent reason in contradistinction to the same symptoms produced by true Meniere's disease hemorrhage in the labyrinth as well as those due to syringing the ear to rotation of the patient to an extension of suppuration to the labyrinth to an acute disease from inflammation or infective processes extending to it to vasomotor disturbances which accompany the menopause or to obvious causes

The manner in which gastro intestinal sepsis produces these symptoms is by the associated congestion of the pharynx and nasopharyngeal catarrh with consequent closure and catarrh of the eustachian tubes

Treatment is directed to the gastro intestinal tract as well as local measures to the nasopharynx and the eustachian tube In addition to inflation the author injects into the tubes through the catheter a few drops of collosol argentum or collosol iodine in the form of a spray The same medicine is sprayed into the nasopharyngeal mucosa

The author states that this method has been most successful in relieving tinnitus due to any cause even where deafness remains

Orro M Rott

Jones J L Postgrippal Otitis Media *J Ark M Soc* 1917 xiv 101

The gravity of the complications of grippe is emphasized by the author There is always uncertainty regarding just the condition in which the disease will leave his patient

The ear complication of grippe is especially dangerous and demands early attention such as incision of the drum membrane at the first sign of redness pain or bulging After the incision is made the treatment consists in maintaining continuous drainage and keeping the canal clean by means of irrigations with a saturated boric acid solution

JAMES J KING

Caliceti P and Vaglio R The Enterococcus as the Cause of Endocranial Complications of Otitic Origin (L enterococco causa di gravissime complicanze endocraniche d'origine otitica) *Policlin Roma* 1917 xxiv se chir 450

It is known that the enterococcus described by Thiercelin may give rise to acute purulent infections but it has not been recognized that this agent could provoke tympanic suppurations and be the cause of grave endocranial complications of the otitic region The authors give the details of three cases of this kind observed in soldiers in all of which they isolated an organism which by its cultural and other characters is in every way identical with Thiercelin's enterococcus

From the study of these cases and the findings of other investigators they conclude

1 In some cases of purulent meningitis and thrombophlebitis of otitic origin a germ identical with the enterococcus can be found

2 The endocranial complications due to the enterococcus which were constantly observed in the authors' cases ran a violent course and rapidly resulted in death from which it may be inferred that the microbes are especially virulent

3 In many tympanic suppurations it is probable that the enterococcus cannot be excluded In such cases there is a tendency for complications to occur which are often grave and fatal

W A BRENNAN



# SURGERY OF THE NOSE, THROAT AND MOUTH

## NOSE

Patterson N. Operations on the Nasal Sinuses  
Carried Out Through a Temporary Opening  
in the Septum B. M. J. 97:13

The author has employed several methods of operating through the septum.

The first and simplest plan is by an oblique incision through the whole thickness of the septum beginning below one half inch behind the nasal orifice and extending downwards and back to the length of about three quarters of an inch. If on ethmoid only is to be operated upon the incision through the septum is made slanting so that the opening through the septal mucosa on the side to be operated upon occurs slightly posterior to that on the other side. If both ethmoidal roots be operated upon the ethmoidal incisions are made at right angles to the cartilage. The objection to this simple method is that resistance offered by the septal cartilage.

The second method involves considerations making a swinging door by two incisions through the whole thickness of the septum extending backwards from either end of the piriform sinus.

The third procedure is described and the one preferred by the author consists in performing a preliminary submucous incision ten days or more before the ethmoid operation. At the time of performing the piriform submucous operation polyposis is present as removed as the middle turbinate.

This transseptal method of attacking the ethmoid has the advantage of bringing the operation area under more direct inspection than when operating through the corresponding nostril. Whether however the advantages are sufficiently great to recommend it remains to be decided by future reports. O. M. Rorr.

Stauffer N. P. Transplantation of the Tibia for Nasal Deformity P. M. J. 97:16

The author prefers transplantation of the tibia to that of the rib because in the latter procedure there is danger of producing pleurisy pneumonia and even of causing death.

A curvilinear incision is made between the eyebrows with the convexity downward. The piriform sinus is then cut high up than the skin incision and loosened above then turned back from the nose on the bridge below. The kind dissected over the nose by means of Freer's septal dissector and a piece of tibial bone is inserted under the skin to the tip of the nose and the upper end inserted under the upper portion of the periosteum of the forehead to which the periosteum of the transplants is

sutured. The skin is closed with fine horsehair stitches and a gauze padding placed over the nose. O. M. Rorr.

## THROAT

Roy D. Epithelioma of the Posterior Pharyngeal Wall Cured with the Electrocautery M. J. T. M. 9:133

The author reports briefly a very interesting case of epithelioma of the pharynx cured by one application of the electrocautery. The patient was a woman 37 years old with a long previous and family history. She had suffered for three months with a constant and throbbing in her throat. Continuous treatment with throat ulcers.

Examination showed a rounded ulcer on the posterior pharynx all at the center one half of which was hidden by the soft palate. It was a dirty gray in appearance with sharply defined edges but half an inch in diameter and extended as deep as the suprathyroid pons. A piece of esophageal probe was applied with the

thermo cautery point well outside the edges. No reaction and no discomfort followed its removal. The area healed practically after neaplication. There was a haemorrhage since the removal of the epithelioma with no recurrence. J. M. J. H. G.

Motimer J. D. The Probable Cause of Fatality in the Tonsil Adenoid Operation P. M. J. L. d. 9:48

Therapeutic management of

Intubation administration of the anæsthetic be cause of (a) failure to select the appropriate anæsthetic (b) lack of knowledge so that a deep anæsthesia is not taken for a light one (c) failure to maintain air passage and to catch the respiration and circulation (d) failure to regulate the anæsthetic when circumstances alter (e) overdosing absolutely or relatively. Of these cause (a) and (c) are more common than (e).

Respiratory obstruction due to the location of the operation held just above the air passage.

3 Shock

4 Hæmorrhage

Status lymphaticus considered as more of an idiosyncrasy the author thinks many reported cases could have been otherwise explained.

As to treatment the head should be lowered the face sponged with cold water the air passage cleared either by swabbing the mouth firmly into mitt pressure on the back of the chest by

artificial respiration or even tracheotomy. Finger pressure over the trachea and larynx through the skin is also suggested as a feasible means of expressing blood clots. Massage of the heart may be useful.

Otto M. Pott

**Campbell R. A.** Tonsillectomy. Some Indications for and Some Observations on the Operation. *J. Lancet* 1917 xlviii 634

The generally accepted indications for tonsillectomy are mentioned. With regard to the position of the patient the author prefers the side position for the following reasons:

- 1 The tongue can be depressed on that side.
- The thighs and legs are flexed as in the sitting posture.
- 3 The trunk and head are in the same relative position as while sitting.
- 4 The head is tipped backward, the side of the head resting on a sand bag and the operator sitting with his head on a level with the patient.
- 5 This position when properly used affords relaxation to the throat muscles so that when the tonsil is grasped it can be moved in any direction.

Otto M. Pott

## MOUTH

**Graves S.** A Case of Adamantinoma Showing Epithelial Pearls. *Am. J. M. Sc.* 1917 xlviii 313

The majority of neoplasms arising from embryonic structures of the teeth are odontomas. Mallory recognizes three types:

- 1 The follicular cyst.
  - 2 The adamantinoma, branching masses of epithelial cells of which some correspond to adamantoblasts and others form the enamel pulp. Those cells in the enamel pulp rarely form definite epithelial pearls. The adamantinoma does not produce metastases but often cause much local disturbance.
  - 3 The odontoma, produced by the conversion of fibroblasts into odontoblasts.
- Adamantinoma develops from epiblastic cells which normally produce adult enamel while odontoma arises from mesoblastic odontoblasts which normally differentiate into dental pulp, dentine and cement.

Between the outer and inner layers of enamel cells is the enamel pulp consisting of epithelial

cells whose protoplasmic reticulum sometimes accumulates excessive secretion with abnormal coalescence of spaces giving rise to cystic tumors filled with gelatinous material. Larger cysts are formed in the stroma of such tumors surrounded with cylindrical cells. These two kinds of cysts are characteristic of the cystic adamantoblastoma.

In the microscopic picture of the adamantoblastoma the cysts are in the stroma lined with cylindrical epithelium whose nuclei are in the opposite ends from the cyst.

The author reports the case of a negro boy sixteen years old. A growth began as a swelling of the gum one year before he entered the hospital. Its development was gradual and painless. The tumor was removed from the superior maxilla and sent to the laboratory with the clinical diagnosis of osteosarcoma.

The microscopic diagnosis was adamantinoma developing from adamantoblasts showing epithelial pearls. Five months after operation there was no sign of recurrence.

F. P. Hammond

**Amorosi P.** A Case of Primary Tubercular Ulcer of the Tongue. *Un caso di ulcera tubercolare primitiva della lingua*. *Riforma med.* 1917 xxxviii 798

From the clinical and anatomicopathologic point of view lingual tuberculosis may assume one of three distinct forms: a tubercular ulcer, a tubercle or a cold abscess. Of the three forms the tubercular ulcer is the most frequent. The author relates a case in a man of 35 years with a tubercular family history. The ulcer was on the left margin of the tongue. The author excised the left antero-lateral portion of the tongue containing the ulcer. The patient made an uneventful recovery and left the hospital in perfect condition. Pathological examination of the ulcer showed that it was lingual tuberculosis with a positive finding of Koch's bacillus.

The author thinks that the infrequency of tubercular lesions in the tongue is due to two factors: (1) the particular resistance of the lingual mucosa to the direct penetration of the tubercular bacillus and (2) the natural resistance which all stratified muscles offer to bacillary localization. Most writers find a concomitance of tubercular lesions in the respiratory apparatus. This was not found in the present case.

W. A. Brennan

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### SURGERY OF THE SPINAL COLUMN AND CORD

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## GENITO URINARY SURGERY

### Kidney and Uter

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 n l l l M J 9 1 3  
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 [27]  
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d f t h p c t o n o f d f e s E B a t u  
L y n g o p 9 7 8 5

## SURGERY OF THE NOSE THROAT AND MOUTH

### Nose

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L H P G E R P r c R o y S M d 9 7 5 t  
L r y n g l  
A s o f a l i b m a i t h r i g h t f t h p m  
a d m i p t n L H P f r P o c R o y S c  
M e d 9 7 S t L r v l  
L u p d t b c l f t h a d l r y g r l  
e d 7 I M R E P R S M d 3 7  
S e t L r y o l  
O p r t o t h e i a d t t h g l  
t e m p r y p e n g t h p t m N P T T E R N B t  
M J 9 7 u 5 3 [286]  
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L E B A R N I l l M J 9 3 6  
M i g a t p p l m f t h n d g h t m l l y  
n G F E R R P h e l P m a 9 v u  
c h u 3 5 3  
I t l m t c g y t h p e a l f e c c t b  
w i t h c a t l a g n d c a t l g e t n p l n t C S m c  
C l f S t J M d 9 7 4 4 5  
T r p l t a t n f t b f r a l d f m t y N P  
S T A U F E R P e n M J 9 7 [286]

### Throat

E p t h l m a f t l p t p h r y l a l l d t l  
t h l e t o c a t y D P o M e d T m 3 7 1 3 3  
[286]  
E p t h e l i o m a f l f t c a l d t w o y f t p e t  
J D O N E N P R y v c M d 9 u S c t L y  
g o l 7  
T h e p b l e c a u e o f f t a l t s t t h e t l d d  
p e r a t n J D M O R T I M E P t t L o d 9 7  
c 4 8 [286]  
S u t u r w t h o t d a e n t l y g l g y L B c o  
R e d l r y o l P r o v u 5 3  
T n l l e c t m y n t l t b l o f L D E N N  
L r y n s c o p 9 7 v u 8 5  
R e p o t n s c a s e o f t o n g u e t m y n d p h t e r n  
c a r r i C C B A L A N T Y N E d B S C O R N L T B t  
M J 9 7 6 8 6

### Mouth

S u p t t p a t t f t h l j t h  
i l f m d g e p d t z a t N C H A U T  
B l l m m d h d P o l o  
T l f l f t p l t J E F A E R P a  
t i t J l o 4  
l e l t f t t t h y d a t h e m y f t p t h b  
m f t t h f t h d p l t a l d f a u c i a l  
i l l N P r r v P o R y S o M d 9 7  
t L r y l 3  
C f a d m n t m h o g p t e l l p l s 5  
C r A m J M S o l 3 3 [287]  
C h i d t l f t J E N D E L M A N D e t l  
C m 9 7 h 7 3  
A s e f p r i m y t b e u l l c f t h t o u P  
A m R i r m m d 9 0 8 [287]  
A e f o g t a l m a f t h t g u e F M  
H U G H S L a t L d 9 7 7 4 9

APRIL 1918

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| B chel n H 3      | I ed ld J 33     | Mally 34         | Sh ld C 3 357   |
| Bla d S tt J 36   | F t W A 3 8      | M d l M 3 8      | Sh ey G O 364   |
| B t H ry 31       | F k L H 348      | M C 330          | Skull P G J 34  |
| B a H A 335       | Ga k G E 3       | M hall H W 3     | Smith M K 333   |
| B o q P 3 5       | Ga H S 356       | M la 360         | S ttz H S 351   |
| B ool C 356       | C th r L 3       | M M 330          | Ste kma C 386   |
| B ooks B 36       | G g J F 3 8      | M y L 345        | Sto I S 367     |
| B o L T 347       | G ll K 356       | M C H 333        | Symm s D 35     |
| B lb H C 377      | Glt o W S 3 8    | M W J 334        | Γ t J 343 344   |
| C hll G F 343     | Giffin H Z 354   | M C l A D 3 5    | T j l r G 34    |
| C ld ell E W 376  | Gll tt A J 34 8  | M k R T 363      | T r da M 34     |
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| Ca te H S 33      | Got K 3 9        | M ll H A 3 4     | Th mps J E 3 4  |
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| Ch tt ton C C 348 | Gr y L G 33 8    | M t S J 356      | Γ oll t L 33    |
| Chom E 367        | G G 3 4          | M lme 3 6        | T ffe T 346     |
| Clark H C 34      | H bhegg C J 34   | M p fit 3        | Uffoltz 364     |
| C le L G 33       | H d ngu 379      | M tg m rv D W 36 | V lab g r M 3   |
| Corpe h t 34      | Ham l t J A G 37 | Moor N 3 9       | V ga M 3 6      |
| Cou ty 3 7        | Ha ock T H 3 6   | M ga J D 3       | V 3 7           |
| C re A 35         | Ha me T W 345    | M ch t A V 3 7   | V e t W G 33    |
| C hn B B 3 8      | Ha C T 3 7       | M tt F W 364     | V ra M 373      |
| C la d G W K 37   | H th y F J 323   | M ey V 349       | Wa ts C E 360   |
| Cul e G D 36      | Henn r C H 35    | Mu y L M 3 7     | Waltr H W E 3 8 |
| D gu t 3 4        | Hes J H 37       | My s T H 35      | Watki s T J 369 |
| D k H D 3 2       | H be y M J 36    | Myl s R C 3 5    | W t C G 358     |
| Darn ll W E 37    | H ll A J 354     | Nichols F H 3 5  | W ts E M 380    |
| De r J B 330      | J ff on J C 37   | N n H A 3 7      | W lkt K D 32    |
| Def ta L 33       | J E G 360        | Nutt J J 36      | W ll s A M 337  |
| D l m E 343       | Joseph B 30      | Olive R 3 5      | W slo R 342     |
| D S rd J 38       | Jung F 37        | P ch t V 34      | Wohl M C 3      |
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# INTERNATIONAL ABSTRACT OF SURGERY

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## COLLECTIVE REVIEW

### THE ROENTGEN DIAGNOSIS OF LESIONS OF THE THORAX

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ALTHOUGH the roentgen ray has been used in the diagnosis of thoracic lesions almost since its discovery it was not until improvement in technique made possible short exposures in the making of roentgenograms that much progress was made. The early work relied almost entirely upon the fluoroscopic examination and Crane (15) was one of the first to publish a comprehensive article on the value of this method in this country. In 1899 Rieder and Rosenthal (57) reported the making of chest plates in one second or less with the aid of intensifying screens. Three years later Hulst exhibited plates at the annual meeting of the American Roentgen Ray Society made with like speed with and without the use of intensifying screens. Not long after ward stereoscopic exposures were produced which marked a distinct advance in the usefulness of the rays in pulmonary disease. Since then most of the progress made has been in the field of interpretation which even now is far from perfect or exact and furnishes the main hope for future development.

In this review special stress will be laid on lesions of particular interest to the surgeon. Consideration will be given to foreign bodies introduced by external violence and aspiration lesions of the wall structures lungs and pleura mediastinal contents and diaphragm.

The present war has brought forth a voluminous literature on the localization of foreign bodies much of which is applicable to the chest for here it is obviously impracticable to use the simple two way right angle method of localization. The

stereoscopic method though valuable has a limited field of usefulness because of the time work and expense incurred to make it available. The requisites (2) of a practical method are

1 The apparatus needed must be simple have few parts and these not likely to be mislaid

2 Their operation should not involve reading fine scales making numerical computations or drawing diagrams requiring fine measurement

3 The measurement of small lengths should not be required

4 The required manipulation of the patient should be minimum

5 The delay incident to the development of a photographic plate or film must be avoided except where need of a permanent record is imperative

6 A minimum number of steps in the process is essential both for speed and to avoid undue fatigue of the operator

7 Methods should when desired be capable of use at the operating table

Most of the methods in use are modifications of the triangulation method described by McKenzie Davidson (16) consisting essentially of the taking of two roentgenograms with a known distance of tube from plate shifting the tube a known distance and then reconstructing the lines of the X ray by a special apparatus or determining distances by mathematical computations. Thus Holland (34) uses a table of distances Oram (51) a diagram Blaine (10) a Fuerstenau caliper and Cole (14) special calipers. Hampson's (29) method permits of direct readings on a scale during the fluoro

scopic examination Jordan (38) Straw (65) and Young (68) use the parallax fluoroscopic method whereby the depth is ascertained by adjusting an outside body so that it moves at the same rate of speed on the screen as the foreign body in the tissues Sutton (61) Hammefahr (8) Barclay (2) and Villeon (4) pass in turn directing the foreign body under guidance of the fluoroscopic screen.

After the determination of the location the question of removal depends largely on the judgment of individual surgeons Moynihan (50) states "We may say with confidence that a rifle bullet or a small piece of shell casing may be retained for months or years without causing distress and without affecting appreciably the normal function of the lung in which it is buried. But with large or irregular pieces of shell casing is different. Results thus far have led him to believe that it is probably a safer attempt certainly a safer proceeding to submit a patient in whose lung a large projectile is retained to operation rather than to leave them untreated."

The roentgen ray can give much information relative to foreign bodies which may have been aspirated into the lung Child (13) avers:

1. An X-ray examination should be made in every case of suspected foreign body in the respiratory tract and the foreign body if present should be accurately located before any effort is made to remove it. After the foreign body has been located its removal should be attempted by a skilled bronchoscopist as soon as possible.

A foreign body in the respiratory tract may be displaced by the deep breathing incident to anesthesia so if at the time of operation the foreign body is not found at the place where it has been previously located another X-ray examination should show its new position before further exploration is made or before the operation is abandoned provided the condition of the patient justifies either of these procedures.

3. A foreign body which does not cast a shadow upon the X-ray plate can be accurately located by careful study of the secondary changes in the lung incident to the presence of the foreign body.

Beck (3) uses the stereoscopic method of localization and states that during the last year he has used it but has not failed to locate a single body. Grier (27) states that because of lack of control over the majority of foreign body cases we have not found stereoscopy to be of much value but prefer two views made at right angles to each other (anterior and lateral) with the shortest possible exposure. The lateral view is especially valuable as the inclination of the

foreign body forward or backward often indicates the particular bronchus in which it is located. In cases in which the foreign body cannot be found by the bronchoscopist roentgenography with the bronchoscope in position may be helpful.

After localization Ingals and Friedberg (37) have found the roentgen ray of value in directing the bronchoscopist to find it under guidance of the fluoroscopic screen. Grier (27) believes that fluoroscopic bronchoscopy is only indicated in those cases where the foreign body cannot be located by usual bronchoscopy. When the foreign body is located in a bronchus or other structure which is inaccessible to the bronchoscope a forceps can be projected beyond the end of the bronchoscope and the foreign body grasped and removed under the direction of the fluoroscopic. Technically, therefore, we believe the fluoroscopic should be carried on in two planes at right angles to each other.

In connection with foreign bodies about whose location there is doubt as to whether they are in the esophagus or air passages Grier (6) quotes Jackson to the effect that foreign bodies more or less flat whose plane correspond to the lateral plane of the body are as a rule in the esophagus. In the larynx and upper trachea flat bodies are almost invariably located with their greater plane parallelly. Foreign bodies of only very slight density in the esophagus may sometimes be discovered by the topping of a swallowed bisulphite capsule.

In regard to the bony structure of the parietes of the thorax very little of importance has been added within recent years. Fracture and the various bony diseases can of course be demonstrated with comparative ease. Beck (6) lays stress

on the value of injecting sinus es with his bisulphite paste and making stereoscopic examinations to determine the location of possible lesions of bone which may have been overlooked. Isthell (12) calls attention to the rounded shadow bulging on both sides of the middle line associated with Pott's disease of the dorsal vertebrae and indicating pinal abscess.

The recognition by the roentgen ray of gas infection of the soft tissues following injury by bullet or shrapnel is one of the developments from the battlefield. Davis (17) states that in all cases in which the roentgen ray has shown a halo like shadow about the missile we have found clinically at the operating table and in the laboratory evidence of an infection caused by gas and pus forming organisms. When this is discovered while examining a patient to locate a

missile it is considered an indication for urgent surgical interference. Berry (7) describes two types of gas infection from the roentgenologic standpoint: one in which there are a comparatively small number of discrete bubbles, the other with extensive and diffuse gas infiltration. Savill (58) warns against errors from loss of tissues, ecchymoses and abscesses around missiles producing similar pictures. To this might possibly be added surgical emphysema resulting from perforation of the lung by a splinter from a fractured rib.

In the diagnosis of pulmonary diseases, acute conditions only exceptionally give sufficient additional information to warrant the roentgen examination. Moore (47) states that bronchitis gives a fine string-like shadow radiating outward from the hilum without reaching the periphery of the chest and varying in density according to the congestion present. In the bronchopneumonia of adults according to Manges (44), the roentgen rays are of little value unless the areas of infiltration are so large and numerous that they have coalesced into large patches. The small scattered foci of the ordinary bronchopneumonia are often too small to produce distinct shadows. Bythell (12) declares there is no intrinsic peculiarity in the appearance of the mottling (in bronchopneumonia) to distinguish it from that of tuberculosis consolidations. Acute lobar pneumonia casts a distinct shadow described by Stewart (63) as follows: The shadows cast by a pneumonic process usually commence at the cortex of the lung in the early stage, being limited to one lobe; the most common is the middle right. The consolidation is generally wedge-shaped in appearance, with the base at the pleural surface and the apex toward the root; it spreads laterally and inward toward the root until finally the entire lobe is involved. There may be an extension into other portions of the lung, but even this extension usually spreads in the same manner as the original lesion.

Root pneumonia assumes a somewhat different course. The consolidation appears as a dense fan-shaped shadow spreading toward the periphery, the outer edge being very irregular. It extends from the hilum outward, involving more than one lobe; many cases do not reach the cortex.

Manges (44) states that the focus of infiltration may be localized by the roentgen ray long before there are any physical signs to indicate the process. According to him, the indications for the use of the X-ray in the early stages before the diagnosis can be made by the physical signs exists in patients with unexplained fevers or it

may arise in the later stages when one suspects complications such as pleural effusion, empyema, interlobar abscess and abscess or gangrene of the lung.

An abscess of the lung can be easily recognized with the aid of the roentgen ray according to Pirie (56) if it is partly filled with pus and partly with gas. He emphasizes the point that the erect position is necessary for detection and that the horizontal ray must pass through the upper level of the fluid. Pfahler (54) states that an abscess is recognized primarily by the evidence of a cavity which has been formed. This cavity is usually surrounded by an area of dense tissue resulting from the associated inflammatory process and at times we may recognize the level of a fluid which has collected in this abscess. In gangrene of the lung, he believes there is found less definite cavity formation and more extensive consolidation. Manges (44) describes the gangrene shadow as more diffuse and less definitely contoured than abscess. Chronic lung abscess may be the final condition of untreated cases with foreign bodies (Green and Le Wald, 5).

Regarding bronchiectasis, Moore (48) classifies it from the roentgenologic standpoint into three classes: the infiltrative, the cylindrical and the sacculated. The first type appears as a more or less stringy increase in density along the course of the bronchi, usually localized in the lower pulmonary lobes and radiating outward from the hilum to the periphery of the chest and extending into the costophrenic angle. In the cylindrical type, there is the characteristic mottled increase in density, extending outward along the course of the bronchi, producing a more or less fan-shaped shadow. The density is usually greatest near the hilum and distributed throughout this density, one or more small areas of diminished density may be located. The pseudo-cavitations are practically pathognomonic of the condition. The third type is characterized by the localization of distinct pseudo-cavitations surrounded by dense fibrous tissue. It may be so dense and the cavitations so filled with secretion that the shadow in the roentgenogram is almost homogeneous and the diagnosis difficult. However, the true condition is usually revealed by emptying the cavities. Pfahler (54) states that inasmuch as the disease is now being attacked surgically, before the surgeon can operate intelligently the exact situation and extent of the disease must be determined. It may consist of a single isolated large cavity or of myriads of small cavities connected with the bronchial tree. It involves the trachea, the lower portion of the lungs and particularly



the inner part of the lower bronchial tree. The cavities are distributed in line with the bronchi and for this examination stereoscopic examination is found especially valuable. Bronchiectasis may be associated with a foreign body and this constitutes another reason for routine roentgen examination in this condition.

Regarding the diagnosis of tuberculosis with the roentgen ray much has been written. Bythell (12) says: "In no other branch of roentgenology is it so necessary to combine the X-ray and clinical evidence as in the diagnosis of early hilar tuberculosis in children. The most frequent seat of origin of pulmonary tuberculosis in children is at the root of one or both lungs and in the author's experience this holds good in practically every case. Ill defined mottling extending into the lung substance where normally there should be nothing visible except the fine streaky shadows radiating from the hilus indicates a hilus peribronchial tuberculosis. The distinctive lung features between old and recent foci are the opacity and sharp demarcation of the former as contrasted with the softer and less opaque mottling caused by active disease." Giffin and Sheldon (3) state that the X-ray has been the means by which the time of onset, the location, the extension in a word the entire course following a primary infection of tuberculosis in children has been studied.

Further

1 That practically every case of pulmonary tuberculosis with tubercle bacilli in the sputum can be diagnosed independently by the roentgenologist.

2 That in almost all of those cases in which a radiologic diagnosis was positive when the sputum was negative a review of the histories has corroborated the roentgen findings.

3 That there is a considerable number of patients in whom a diagnosis seems entirely impossible by clinical method although the roentgenologist reports positive findings. These include so-called early cases, healed cases and diffuse tuberculosis.

4 It would seem that a careful study of stereoscopic plates of the chest will show evidences of tuberculosis as early as one can at present be positive of its existence by any other method.

5 That a keener sense of perception is developed through the visualization of lesions and that roentgenology has been a stimulus to physicians in perfecting their skill in physical diagnosis.

6 That the information obtained from the negative report of a skillful roentgenologist may be of very great assistance in general medical and surgical diagnosis.

7 Finally it should be emphasized that trustworthy conclusions can be drawn only by one who has had a considerable experience in the reading of stereoscopic plates. The roentgenologist not the radiogram makes the diagnosis.

Dunham (18) has attempted to correlate the pathology of pulmonary tuberculosis with the roentgen findings. He (19), Bissell (8), Pancoast (53), Hult (36) and many others have reported in detail the findings of different types and different stages of the disease. Sewall and Childs (59) endeavored to compare the physical signs and roentgen pictures of the chest in early stages of tuberculosis. Dunham and Rockhill (60) used the roentgen ray as a safeguard in conjunction with the application of therapeutic pneumothorax. With its aid they were able to select cases to watch the progress of the disease to determine the extent of the lung collapse, to note the pressure on the heart and mediastinum to exclude pleural effusion and to safeguard the unfilled side. Hirsch (5) has furnished a similar contribution.

Syphilis of the lung gives fairly definite findings but these are far from pathognomonic. Bauch (3) describes two cases in which the main changes were diffuse peribronchial infiltration most marked at and around the hilum. Manges (44) states

Syphilitic tumors usually show massive homogeneous shadows and are most commonly at the base less frequently at the hilus. It is erroneous however to assume as is usually done that gummata are always at the base since they may occasionally occur in the upper lobe.

Actinomycosis may involve the lungs by direct extension from an external lesion or be primarily an intrapulmonary condition. Ledoux-Lebard (40) reports three cases stating that the findings in the primary case were those of a pulmonary abscess and signs of sclerosis of pulmonary and bronchial tissue. *Ecchinococcus* disease of the lung shows itself as a definite rounded tumor mass usually sharply outlined by the surrounding normal lung. (Albers-Schoenberg and Mollow 46 and Weber 67). Wadack (66) describes a case in which the cyst contents were coughed up leaving the capsule clearly visible. *Pneumocystis* produces a diffuse mottling usually spread evenly throughout both lungs. Linton (21) summarized his findings in these cases as resembling miliary tuberculosis except that the spots are larger and less sharp. Boardman (11) describes another type characterized by diffuse and uniform thickening of the linear markings and trunks of the bronchial tree.

Tumors of the lung are practically all mal-

nant They may be primary or secondary Moore (47) divides primary malignancies into three classes (a) the infiltrative type which is characterized by a massive infiltration at the hilum and is usually unilateral (b) the military form showing multiple discrete areas of consolidation scattered through both lungs (c) the mixed types having some of the findings each of the other He differentiates these tumors from inflammatory lesions by the absence of an area of inflammation around them and lack of cavitation or pseudo cavitation in them Secondary or metastatic malignancies are far more common than primary ones Moore (49) reaches the following conclusions regarding them

- 1 Pulmonary metastatic malignancy is not an uncommon condition and may occur regardless of the seat of primary focus

- 2 Pulmonary metastasis bears no relationship to the extent or duration of the primary focus

- 3 The clinical picture in a majority of these cases is very definite neither the subjective nor the objective manifestations being characteristic of the condition

- 4 Metastatic pulmonary malignancy is a definite roentgenographic entity, appearing in the roentgenogram as clear cut circumscribed areas of increased density

- 5 In many instances the diagnosis can be established only by the roentgenogram By routine roentgenographic examination of the thorax many patients suffering from malignancy will be saved from useless and unwarranted surgery

Pfahler (54) says that their surgical importance consists in their recognition for the purpose of avoiding extensive operation elsewhere in the body when this complication exists This is particularly true in sarcoma and sarcomata of the lung give a very characteristic appearance in that they consist for the most part of round or spherical tumors which may be single or multiple but are generally scattered through the lung tissue This evidence of involvement of the lung by metastasis from tumors anywhere in the body usually consists in localized consolidation in the lungs and the consolidations do not occupy by preference the usual sites of tuberculous disease though in other respects carcinoma sometimes gives an appearance almost identical with that found in tuberculosis Lilienthal (42) states No limb should be amputated for sarcoma no hypernephromatous kidney should be extirpated without roentgenologic information about the condition of the lungs If the characteristic circular discs of opacity are present it indicates a state in

which palliation alone is justifiable Hodgkin's disease according to Manges (44) also gives sharply defined round shadows in the lungs and the discovery of their presence may clear up an unexplained fever

In pleural complications the roentgen ray furnishes most valuable information both as to diagnosis and treatment A simple pleural thickening usually causes a diffuse increased density through which the normal lung markings are visible At times it may be sufficiently marked to simulate fluid but lacks the well defined limits of such accumulations Regarding the findings with pleural effusions Stewart (63) writes The character of the shadows cast by fluid in the pleural cavity depends entirely on the quantity and the presence or absence of pleuritic adhesions The most common finding in a simple pleural effusion of moderate amount is a dense shadow occupying the entire chest on the involved side and extending upward from the diaphragmatic line with a cup shaped irregular upper surface The size of this shadow depends of course on the quantity of fluid present In children however even without adhesions we may have a clear area of lung structure between the fluid and the root down to the diaphragm This is especially so in beginning effusions where the shadow of the fluid seems to extend upward on the parietal pleura before overshadowing the lung markings at the base As the pleural cavity fills and it usually fills rapidly in children the distinctive cup shaped upper border gradually disappears until finally the entire side is occupied by a dense cloud of a consistent character which completely overshadows the entire lung This is usually associated with some displacement of the mediastinal contents to the opposite side although this result occurs much more frequently in adults than in children

If adhesions are present the effusion may become encapsulated in which cases the dense shadow cast by the fluid usually appears as a globular mass encroaching upon the lung structure from the cortex toward the root the base of this shadow conforming to the shape of the chest This circulation may occur high up or at the base, or it may be anterior or posterior

Pfahler (54) believes that empyema generally gives a denser shadow than does an ordinary serous effusion Exudates associated with pneumonic changes in the lung may be difficult to diagnosticate on account of the multiplicity of the shadows Manges (44) states that interlobar exudates produce hanging shadows which extend along the fissure line from the hilus toward the

lateral thoracic wall. He also call attention to the fact that change in the fluid level with change in the position of the patient takes place much more slowly than it generally is assumed unless air is present in the pleural cavity. Information derived from the roentgen examination in empyema may not only determine the site for operation but its nature as well. Lilienthal (42) states:

For the last two years I have been developing the operation for empyema of the thorax along the lines of rational surgery. Instead of contenting myself with the old fashioned and nonprogressive routine rib resection with its 20 per cent or more of secondary thoracoplastic operation I do not as a rule resect in general empyema but make a long intercostal incision spreading the ribs wide apart exploring the entire pleural space and shaping the operation to fit the case. I do this operation either in one stage or when the patient's condition is too critical in two stages the first step being merely a minor intercostal thoracotomy for immediate relief. The major or second step some days later is again preceded by a radiographic examination. But in encysted or accumulated empyema it is possible to avoid entering the free cavity. The problem is a different one merely the drainage of the pus collection without general exploration. With the aid of X rays the exact localization of the pus possible and the intercostal method of operating is contraindicated. Instead we resect two or more ribs usually together with the periosteum and opening the cavity treat it as an abscess first packing with gauze later draining a necessity. This elective surgery replacing the blind thoracotomy is generally practiced and would be quite impossible without the guidance of the roentgen. Several times I have seen an encysted empyema mistaken by an expert diagnostician for a general one. By the use of the X ray the encapsulation was established and a smaller and less dangerous operation substituted for a greater and more perilous one.

In regard to pleural tumors Pfahler (54) says:

These may be primary or secondary but are generally secondary to carcinoma of the breast. This cancerous involvement is usually associated with fluid and is often difficult to differentiate from fluid due to other causes. Manoes (44) states that in nearly every instance they have massive effusions which constitute the only X ray finding.

Pneumothorax can be readily diagnosed by its increased radiability and absence of any of the characteristic lung markings. If fluid is present at the same time it moves very freely. Ac-

cording to Manoes (44) small pneumothoraces are not infrequently found on X ray examination where one has little or no reason to expect them. In the past few years I have observed this a few times. These small localized air shadows are usually found near the mediastinum and were not associated with any displacement of the thoracic viscera.

The same author declares that the development of adhesions and involvement of the diaphragm can only be determined by X rays. Lane (39) states that adhesions do form and alter the shape and restrict the movements of the diaphragm and may be optically demonstrated. Pleural adhesion will gravitate into the costophrenic angles and obliterate them. Mace (43) reported a number of cases in which the X ray revealed an adhesive diaphragmatic pleurisy with symptoms resembling gastric ulcer. The position and shape of the diaphragm may serve as an indication of lesions in the thorax or abdomen. Some alteration in the phrenic level is a very constant accompaniment of intrathoracic tumor. (Lane 39). In phrenic paralysis the diaphragm stands at a high level and rises during inspiration and falls during expiration. Eventration of the diaphragm can be easily shown with the aid of the roentgen ray especially if the stomach or colon are filled with barium. (Stein 62). Likewise diaphragmatic hernia can be thus shown. Cases have been reported by Grundy (24) and McCleave (45). Subphrenic abscesses may be differentiated from possible thoracic lesions by noting the high position of the diaphragm with a normal lung above it and if gas be present there is a clear shadow immediately below the diaphragm. (Pfahler 55).

Regarding bronchial gland Overend (5) divides them into three groups (a) tracheobronchial when the enlarged gland casts a shadow between and parallel with the sternum occupying the second third and fourth posterior interspaces. For diagnosis its intimate relation with the trachea and extrapulmonary bronchus is decisive. (b) bifurcation glands these are practically invisible except in the oblique picture. For a positive diagnosis the two limbs of the bifurcation must be discernible with the shadow in close connection with one or both. (c) hilum glands an increased hilum opacity may be irregular in outline and contain deeper shadows within it. If the appearance is one of diffuse cloudiness with faint external margin merging gradually into the pulmonary field activity is present.

Mediastinal tumors according to Pfahler (54) are important as a surgical complication because

cause it is often necessary for the surgeon to decide whether the tumor which he is about to remove from some external organ such as the breast the thyroid in connection with goiter sarcoma of the cervical glands etc may also have invaded the mediastinum In some instances even a primary tumor may be taken into consideration for surgical removal The roentgen ray can offer definite information regarding the nature and extent of such tumors Sarcoma is generally primary usually involves the upper portion of the mediastinum and extends outward most commonly in the direction of the section between the upper and inner lobe of the right lung It is generally irregular in outline there is no expansile pulsation and the characteristic extension would serve to make an exact diagnosis Lipoma may develop to the size of the patient's head as I have seen in one case and in which it was almost perfectly symmetrical and showed no involvement or line of extension to other organs It lacked the involvement of the septum of the lung as is commonly true in sarcoma

Carcinoma is nearly always secondary and most commonly a complication of carcinoma of the breast resulting from a direct extension through the lymphatic system The tumors are usually small and commonly produce no direct pressure symptoms Occasionally the whole upper mediastinal space becomes filled with malignant tissue Hodgkin's disease frequently involves the mediastinal glands producing tumors of variable size Associated with glandular enlargement in the neck this is important in the differential diagnosis with tuberculous glands which rarely involve the mediastinal glands but rather the bronchial glands Thymic enlargement is recognized by an extension of an abnormal shadow outward especially to the right but it may also extend to the left of the manubrium sometimes half an inch sometimes an inch or more so as to make a distinct tumor mass Generally however this thymic enlargement is recognized by only a faint but definitely formed shadow extending from one half to three quarters of an inch to the right of the manubrium Hoxie (35) says The fluoroscope should be used to verify all cases where the percussion would indicate thymic enlargement Thoracic goiter may exist a distinct shadow or encroach upon the tracheal shadow producing an hour glass or S shaped configuration (Hartung 31) A case of endothelioma seen by the author produced an enormous irregular enlargement Shen (60) has described a fibroma of the mediastinum

All of the above tumors are non pulsating

differing in that respect from aneurism of the aorta This can be readily diagnosed with the aid of the fluoroscopic screen The diagnosis of the variety of aneurism is important for Hure (30) states that wiring with electrolysis for therapeutic purposes is contra indicated in the fusiform type Atheroma of the aorta is recognized according to Pfahler (54) by the evidence of tortuosity and consists especially of a sharp projection to the left at the beginning of the descending portion of the arch more important is the detection of calcareous plates in its walls by examining the patient in the oblique diameter The discovery of the above conditions may have an important bearing on the advisability of performing an operation for some other condition

Relative to heart lesions Hirsch (33) summarizes the value of the roentgen examination as follows In a general way it may be said that this method by permitting the visualization of the activities of the heart gives such a definite conception of its shape and its relationship to the thoracic contents as no amount of percussion can give One of the most important contributions of the roentgen ray in the examination of the heart has been to provide a method for its measurement This method makes it possible to study with considerable accuracy the response of the diseased heart to therapeutic agencies to foretell impending decompensation and to determine the particular portion of the heart subjected to the greatest stress The basis of the diagnosis of cardiac valvular lesions by the roentgen ray is the change in form which follows disordered function resulting from diseased valves Two main varieties may be described (a) the mitral type or spherical heart with enlargement of the right below and left above and (b) the aortic type or oval heart with increase of the left ventricular shadow and of the ascending aorta and arcus aortae and violent pulsation of the left ventricle In mitral stenosis and persistent ductus Botalli the heart is rather small and there is an increase of the left auricular shadow

In pericarditis with effusion the evulsive changes cause an increase in the heart shadow in all directions especially to the right so that the transverse diameter tends to approach or exceed the longitudinal The median shadow assumes a rounded broad triangular shape Bythell (12) states In pericarditis and pericardial effusions an important diagnostic point is the loss of the cardiohepatic angle its absence is a perfectly reliable indication of the presence of pericardial fluid or of great thickening of the pericardium

Lehman (41) describes the characteristics of pericarditis with adhesions as follows

1 Band like filling in of one or both cardio diaphragmatic angles

Distinct notch formation of the heart shadow contour

3 Indistinct fluttering heart pulsations corresponding to a covering over of the heart shadow by broad adhesions

4 Lessened motility of the diaphragm due to basal fixation in cases where the lungs are negative

Coming within the thorax brief mention will be made of lesions of the oesophagus although little new has been added in the line of roentgen diagnosis within recent years. Diverticula can be readily recognized if they are filled up with an opaque meal or paste. In the same way contraction whether malignant or benign can be shown if the narrowing is sufficiently marked to cause some obstruction to the meal. In order to see the change before it occurs Stewart (63) devised a long hollow cylinder of soft material part of which he had the patient swallow. He then distended this tube with opaque content and thus mapped out the entire esophagus.

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- A Roe tg t hl ) F t l d ( b d  
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6 S IN S Gy & Ob t 9 4 vii 547  
63 S W Am J R tg l 9 6 76  
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# ABSTRACTS OF CURRENT LITERATURE

## GENERAL SURGERY—SURGICAL TECHNIQUE

### ASEPTIC AND ANTISEPTIC SURGERY

Gould A P Modern Antiseptics *Brit M J*  
19 7 11 677

Gould reviews the progress made in antiseptics. The entrance of bacteria into wounds was early recognized as the damaging factor in wound repair and the prevention of wound contamination was heralded as a great advance in surgery.

The question which confronts the surgeon who comes in contact with a large number of already badly infected wounds is whether antiseptics cannot eradicate these same organisms from the tissues in which they are already growing and leave the tissues free to heal in the same painless feverless and rapid way as when no infection has occurred.

It is the infiltrated abscess wall which gives rise to symptoms. When the abscess is opened and the dead material is permitted to escape the destructive process terminates and healing begins.

When an acute abscess bursts and healing occurs the following factors play a part in the process: (a) autogenous germicide (b) preservation of the living surrounding tissue (c) evacuation of all dead material and pus.

The author believes that mechanical cleansing and draining of the wound is not sufficient for wound healing. The natural germicidal properties the author asserts are slow and inadequate. Boric acid dressings as commonly employed must not be regarded as external or heterogeneous antiseptic dressings. They may be of value only in stimulating the flow of the natural antiseptics.

Taking the natural method of sterilizing infected wounds as the model the following principles must be observed: (a) efficient germicidal agents are to be used (b) antiseptic agents must be innocuous to living tissue. Opposed to natural antiseptics are substances like pure carbolic acid or substances poisonous when absorbed into the blood stream (c) The efficient but harmless antiseptic should be applied continuously to the entire infected surface and shall be so administered as to find its way to every spot in the germ laden tissues (d) The rapid removal from the wound of all dead and dying tissue is necessary. This should be accomplished early and should be neither intermittent nor dependent upon such violent measures as strong irrigation or a firm pressure.

The author puts the treatment of infected wound into three divisions:

1 The use of an antiseptic which is at once very highly germicidal and innocuous to human tissue. Flavine is cited as an example.

2 Frequent gentle application of a potent germicide to the whole surface of the wound until the discharge is clinically sterile and closure.

3 Immediate closure of the wound with a sufficient amount of reliable germicide.

Brilliant green and flavine are of some value the author asserts but are not new to the surgeon. The second method is that introduced by Carrel the third is the Morison treatment.

In commenting on the Carrel method the author asserts that he has visited the hospital at Compiègne and observed the method as carried out by Tuffier the results were striking. He states that he has seen a large number of compound fractures which healed without any formation of pus. A large number of empyemas were treated by free incision and irrigation by the Carrel Dakin solution with remarkable results. The aim of the Carrel treatment is to obtain clinical sterilization and then to close the wound and secure union. No wound shall be closed until it has been proved to be practically sterile by three repeated bacteriologic examinations. He emphasizes the importance of carrying out the rules laid down by Carrel and a personal observation by the surgeon himself of the details.

The Morison method consists in first removing from the surface of the wound as completely as possible all dead and dying tissue and tissue detritus and all accumulations of discharges and of bacteria as well as blood clot and all other foreign matter. The wound is dried and filled with a paste called bipp. The paste is rubbed well into the wound and then the wound is closed. A dressing is then applied which is to remain for twelve days. At that time the wound is found healed.

The author discusses this form of treatment at length and considers this by far the most efficient means of wound dissection. The results that he observed were beyond belief. He did not come personally in contact with the cases treated by Morison but his impressions were obtained from eye witnesses and from written reports which he read.

He concludes that the methods here advocated require a thorough understanding of the principles upon which they are founded and must be thoroughly studied and scrupulously carried out by the surgeon assisted by competent nurses.

M A BERNSTEIN

D. Lin H. D. and Dunham E. K. The R. Lat. e  
Germicidal Efficiency of Antiseptics of the  
Chlorine Group and A. R. Lin. and Other  
Dyes B. J. M. J. 47 64

When the unstable chlorine germicide is added to the medium and permitted to decompose and then are added the mercuric compounds it will be found that the organisms will grow unchecked. The authors criticize the experimenter for not observing these well known principles and assert that their failure is due to these errors.

Browning published a series of experiments in which the germicidal potency of various antiseptics of the chlorine group is compared with the various dye stuffs with results indicating a numerical superiority for the latter. The author asserts to be untrue and they attribute the results obtained by Browning and his associates to a wrong technique in testing the germicidal potency of the chlorine antiseptics.

The lethal concentration of chlorine T tested against staphylococci in serum is taken as unity. The lethal concentration of chlorine T in serum is stated to be 250. Much lower concentrations were published by other observers. The discrepancy was due to the fact that the antiseptic was added first to the medium and last to the organisms. No indication was given by Browning of the all important interval of time elapsing between the two additions.

The hypochlorites and antiseptics of the chlorine group possess properties of instability and reactivity. They react with proteins, peptones and amino acids to form products some of which still possess germicidal properties. The chloramines and others which are entirely inert to chlorides and compounds containing chlorine are added to carbon.

When a relatively large excess of protein acts on minimal quantities of hypochlorite no chlorine derivatives persist and the whole of the chlorine is converted into germicidally inactive forms.

Experiments in which works have taken protein rich media then added minute quantities of the chlorine antiseptics and after an unstated interval when all or most of the antiseptics have been decomposed the mixture was inoculated with organisms. Surprisingly as expressed at the ability to grow organisms. Under such circumstances the observed results depend much more on the rate of reaction between the antiseptic and the protein medium than upon germicidal action. Great difficulties are encountered in securing uniform laboratory experiments on the germicidal action of substances upon pus largely owing to extreme variations in its composition and physical condition and whether the infectious organisms are free or ingested in the leucocytes. Serum as a medium has a distinct advantage because of its fairly constant composition although many organisms are easily susceptible to the action of blood serum.

In conclusion the authors forth the following:  
(1) Rapid and complete disinfection was brought

about by solutions of members of the chlorine group of antiseptics of the strength commonly used in the treatment of wound when added to heavily infected blood serum muscle extract mixture (2) Under similar circumstances solutions of acriflavine possess brilliant green and malachite green failed to sterilize in six hour mixtures which the chlorine antiseptics sterilized completely in five minutes less. The author further shows that a 600 solution of chloramine T can sterilize in six hour an infected blood serum muscle extract which was sterilized in 17 hours by 1:1000 acriflavine.

The errors in Browning's experiments were first the addition of the chlorine antiseptics to the blood serum before adding the organisms. Secondly the effective bacterial concentrations in their test namely 0.001 of a 1:2000 dilution in saline of a twenty four peptone water culture. It appears that the use of such small numbers of organisms in untested for the determination of the germicidal effectiveness for in the first place the high concentration of organisms in the secretions of a wound of long standing borders on surgical territory and is therefore not comparable with the concentration in acute septic wounds. If 5 per cent of the organisms in Browning's tests survived they would have a good chance of being entirely killed and sterility might thus be increased when viable organisms are actually present.

Another cause of the marked difference between the author and Browning's results was due to the fact that Browning allowed the antiseptics to act for twenty four hours before testing whereas in the author's experiment subcultures were taken at frequent intervals which brought under observation the progress of disinfection. The longer period naturally fosters a favorable judgment of the slowly acting dye while shorter periods are adverse to them. W. A. BERNST

B. Uet H. nry Gutt Percha Hypertherm C. Dres  
ing (D. r. p. n. m. e. t. h. y. p. h. r. m. q. u. p. l.  
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1 67

The author a gynecologist has experimented for the past twenty years in the matter of dressings. He directs attention to the great value of thermotherapy not alone in gynecology but in war wounds. Older methods of applying paraffin vaseline etc. at a high temperature are not satisfactory because of the burning of the patient because they could not be isolated and applied. The author employs gutta percha to apply this in solution. A mixture is made of a low grade paraffin fusible at from 4 to 45 degrees. The gutta percha is the proportion of 50 of gutta percha to 1000 paraffin. This can be applied with out burning at temperature of 60 to 90 degrees and is painless and very pliable. It is not more slowly than water applied at the same temperature. It has been successfully used in 1907 in Cynecological Clinics and is valuable for the ambulances.

W. A. BRENN

Gould A P and Others A Report on the Carrel Dakin Treatment of Wounds *J Roy Army Med Corps* Lond 1917 **xvix** 616

The Commission headed by Gould recently visited Carrel's Tuffier's Chutro's and other hospitals in France to study the Carrel Dakin method in operation. In Carrel's and Tuffier's clinics the dressings are renewed every day. In Chutro's the inner dressing is changed daily for three days after an operation and subsequently every second day. The outer dressing is renewed only about once a week. The Commission could not see that Chutro's less costly practice was attended with any disadvantage.

Every dressing was made by the surgeon himself under the strictest aseptic. He was assisted by a large staff of highly trained nurses each charged with one step only in the preparation of the dressing. This made the technique elaborate and the process rapid. The Commission has since found that it is possible to carry out the dressings with two or at most three trained helpers.

In Carrel's and Tuffier's wards a smear is taken every second day. When the chart shows a count of less than one organism per field on three successive occasions the wound is clinically sterile for operative closure. The making of these bacteriologic observations and counts is essential if the surgeon desires to practice secondary closure of infected wounds. In Chutro's clinic the procedure is simpler. In a large number of cases no bacteria charts are kept and smears are only examined once in ten days. Chutro does not secondarily close infected wounds.

The Commission refers to the methods for keeping the patient's bed dry.

The use of Dakin's fluid or eusol sometimes causes irritation around the wound. This must be guarded against. In Carrel's and Tuffier's clinic the skin for some distance beyond the wound is protected by a layer of gauze soaked in sterilized vaseline. Chutro applies vaseline only when he sees evidence of irritation and then he puts it on thickly by means of a sterilized wooden spatula. The Commission thinks that Chutro's plan is the simpler and that it is effective.

In Carrel's Tuffier's and Chutro's clinics only Dakin's fluid is used. In other hospitals eusol and ether were used as well.

The Commission says that in estimating the value of the Carrel Dakin treatment the method of applying the antiseptic and the antiseptic employed must be appraised quite separately. While convinced that the use of the Carrel tubes is a very valuable means of applying an antiseptic the Commission is not satisfied that Dakin's fluid is markedly superior to eusol and it is prepared to find that other antiseptics can be used with advantage by the Carrel method.

The results of the Carrel Dakin treatment as seen by the Commission in a large series of unselected cases were strikingly good.

1 The bacteria chart usually showed a rapid fall in the number of bacteria present in the discharge. Tuffier states that he can sterilize any wound by this treatment.

Many wounds rendered clinically sterile were then closed and healed by primary union. In some cases cavities in bone due to comminuted fracture or chronic osteomyelitis and necrosis had been filled with a subcutaneous fat graft and the skin edges sewn over the graft. Primary union occurred and the bone consolidated. Only wounds proved in the laboratory to be practically germ free should be dealt with in this way. This point is insisted upon.

3 In Tuffier's clinic the treatment is most effective in postpneumonic and chronic empyema resulting from gunshot.

4 The Commission saw a large number of serious gunshot wounds treated by the Carrel Dakin method in which there was no suppuration. These included compound fractures of the pelvis femur tibia and humerus etc as well as chronic osteomyelitis of various bones. In cases of badly uniting fractures Chutro does not hesitate to divide the bone to obtain proper alignment of the fragments.

5 The wounds granulated well the granulations were even and florid and so far as the Commission could judge the healing progressed rapidly.

6 The patients looked well and were free from fever when the bacteria count was low. They made no complaints of the method.

7 The most striking evidence of the value of the treatment was a printed notice put up by Tuffier in his clinic as expressing his opinion after a considerable experience with the Carrel Dakin treatment. This notice reads:

Every patient who suppurates has the right to ask his surgeon the reason for it.

The objections raised to the treatment are in brief:

1 It requires the personal attention of the surgeon to each individual treatment. The number of cases that can be treated is therefore limited.

2 The technique is more elaborate than that of most wound dressings and causes a heavy strain on the staff.

3 It is alleged that flushing the wound every two hours is disturbing or painful to the patient.

4 There is difficulty in preparing the antiseptic fluids.

The Commission thinks that these objections are one and all of small account when compared with the proved advantages of the Carrel method.

The Commission is of opinion that the Carrel Dakin method of treatment if carried out thoroughly is full of promise and believes that it will (1) diminish the dangers incidental to sepsis including secondary hæmorrhage (2) hasten the patient's convalescence (3) lessen the liability to stiff joints and cicatricial deformities (4) enable the patients to leave the hospital with better general health than they otherwise might and (5) where secondary operation becomes necessary those operations are more likely to be free



from septic complications than here some other system of primary treatment has been adopted.

An appendix to the report gives the full details of the preparation of Dakin's solution according to Daufresne's technique. In France the cost of this solution works out at about three centimes per liter so that the cost of treating an average case per twenty-four hours is only about one cent.

W. A. BRENNAN

Goss G and Others Prim y Sut r of W r  
Wounds (L t p m t d g )  
B l l t e S d l d P 9 7 l u 8 6

Tissier has demonstrated that every war wound which is not infected by the streptococcus can be primarily sutured after appropriate surgical treatment and ought to heal. The authors have put this into effect. Of 77 wound d delivered to their hospital by the ambulance 430 have been sutured primarily 75 were not operated upon 19 could not be sutured for various surgical reasons and 3 cases were other than war wounds. Thus of those operated for war wounds 78 per cent were primarily sutured. Of the sutured cases 209 were severe fractures. In the 430 patients 759 sutures were executed and these gave 675 unions by first intent. The stitches were removed by the tenth day and cicatrization was perfect. There were altogether 3 deaths in the cases sutured but the majority of these deaths were due to abdominal thoracic or other complications and the authors say that nearly only 3 sutured wounds resulted fatally out of a total of 9 sutures.

The authors describe the details of their bacteriological examinations and surgical treatment. They think that the advantages of primary suture in war wounds are 1. control of bleeding. 2. prevention of the danger of secondary infection which is so frequent when wound are left open. 3. fresh wounds rapidly lococenic infection is found only in from 10 to 15 per cent while in the tertiary hospital 80 per cent of the wounded show this infecting agent.

Besides these advantages it is beyond doubt that from the economic point of view the results of use of the highest importance there is economy of time and material and a considerable economy in hospitalization and in pensions. Patients with gross injuries of the soft parts are completely cured about the thirtieth day. The only indications necessary to realize the excellent results obtainable is to assign a competent bacteriologist to work with competent surgeons and to allow them to keep patients until cicatrization is complete.

W. A. B.

### ANÆSTHETICS

Eclols F S Anæsthesia and the Anæsthetic  
I g W S m W t t 917 xx 375

It is the object of the author to give to the novice the fundamental principle of anæsthetics and a working technique for the use of ether by the open drop method. He defines surgical anæsthesia as

a condition of unconsciousness sufficiently complete to allow surgical operations to be performed without pain and with as little shock to the nervous system as possible. He claims that in the administration of all anæsthetics until the patient is in absolute surgical anæsthesia there is more or less shock.

The three stages of anæsthesia are well described with the symptoms and their proper interpretation. The duties of the anæsthetist to the patient and to the operator are clearly set forth in such a manner as to impress upon the anæsthetist that he has no time for close observation of the operative technique itself. He describes a fourth stage of anæsthesia the stage of too deep anæsthesia the danger one. The symptoms with their proper interpretation and method to combat this undesirable stage are clearly given.

Cyano is itself in the third stage not necessarily a sign of too deep anæsthesia. The author finds that some people cannot be anesthetized sufficiently to permit of an operation unless they are cyanosed all the time. The respiration must be carefully watched in these cases and as long as the breathing is regular the patient will have no difficulty. In case of apnoea during the course of an otherwise smooth anæsthesia the author makes several useful suggestions to force breathing as soon as possible.

The article concludes with several valuable suggestions. Most important of all is the warning to the anæsthetist not to get excited an excited person is much more dangerous than is an absolute novice who follows the prescribed rule and keeps his head.

ELLIS FLETCHER

Tilmon J E An Anatomical and Experimental  
Study of Sacral Anæsthesia A N S S  
I t l 19 7 L 8

Sacral anæsthesia is used as a routine procedure in the surgical clinic of the John Sealy Hospital in all operations on the anal canal and lower rectum and perineal operations in external urethrotomies and in operations on the body of the penis when combined with total castration of the abdominal wall in cystotome and suprapubic prostatectomies.

The solution is made by dissolving three No. 4 tablets in 30 c.c.m. of distilled water and adding 10 drops of 50 per cent solution of calcium chloride. The composition of the 4 tablets is novocaine 0.5 gm. and suparen 0.00015 gm. 30 c.c.m. is injected into the sacral canal. As a rule one injection is sufficient and anæsthesia is complete in half an hour in the branches supplied by the sacral nerves.

The effect of the anaesthesia is sensory ability first. Even though anæsthesia may be complete to the knife or cautery the patient may resent rough dilatation of the sphincter. It has been found that the greatest intensity of action is shown in the areas supplied by the sacral nerves from the second downward but that it extends in many cases upward as high as the upper lumbar and lower dorsal nerves.

Sometimes the anaesthesia is deep enough to allow performance of operations on the scrotum the inguinal region the dorsum of the penis and the suprapubic region of the abdomen. The clitoris and labia minora do not often lose their sensibility completely.

The author presents charts to show in graphic manner the area of anaesthesia the time taken for the anaesthetic to produce its effect and the spinal segments affected.

The injecting needle seldom passes higher than the third sacral vertebra. The author conducted a series of experiments upon 15 cadavers in which staining fluid was used instead of the anaesthetic solution and it was found that the fluid diffuses upward to levels varying from the third thoracic vertebra in eight bodies to the seventh cervical in one body. In none of the bodies did any of the injection fluid get inside the dura mater. In every case there was deep staining of both the anterior and the posterior branches of the sacral nerves.

In giving the anaesthetic the needle enters the hiatus sacralis which can be felt easily in a thin subject but in obese subjects where the bony landmarks are obscure the needle can be introduced about an inch above the end of the sacrum. The direction of the needle should be upward directly in the middle line. Some resistance will be felt as the needle penetrates the fibrous membrane closing the hiatus and it is not necessary to insert the needle any farther than 3 to 4 cm. If cerebrospinal fluid flows the needle should be withdrawn to a lower level until the fluid ceases to flow.

For purposes of making a more complete study 33 sacra in the dissecting room were examined and the author presents a table of the anatomical features. In 24 of the 33 specimens the probe passed along the whole canal. In the remaining 9 it passed in all except one as high or higher than the second sacral foramen. In this specimen it passed as high as the upper part of the fourth sacral foramen. In only one case was the canal so narrow as to raise

doubts whether a needle could be passed along it. In every case the sacral canal was accessible to the needle. There seems no reason to doubt that if the needle penetrates the fibrous membrane that closes the hiatus and enters the loose cellular space the injected fluid will pass upward around the nerves and around the dura mater. V C HUNT

### SURGICAL INSTRUMENTS AND APPARATUS

Marshall H W. An Orthopedic Innersole for Shoes. *Am J Orthop Surg* 1917 xv 788

The device which the author describes is an innersole which is designed to support the longitudinal arch by means of props in the scaphoid region and also to relieve calluses in the front part of the foot by correcting the anterior arch defects.

It consists essentially of two small metal plates attached to a flexible leather insole, one plate being placed at the heel and prolonged forward on the inner side as far as the scaphoid bone and the other located just back of the heads of the metatarsal bones constituting a base upon which to build supports for calluses rigid toes and other troubles.

The device is not adapted for routine use by inexperienced persons since careful fitting is necessary especially for the anterior defects otherwise the numerous faults and errors arising from the use of usual store appliances will be encountered.

R B COFIELD

Myles R C. Aspiration or Vacuum Suction Apparatus. *V I M J* 1917 cvi 629

The author advocates the use of some type of suction apparatus in cases where the ability to swallow or cough has been partially or completely lost and the patient is being practically drowned in his own secretions. He cites one case in which considerable relief was obtained from the use of such an apparatus and two others in which it was of life saving value. H H IRTILICH

## SURGERY OF THE HEAD AND NECK

### HEAD

Nichols E H. Indications for Operation on Traumatic Head Cases. *Boston M C S J* 1917 clxxvii 508

Nichols makes the following observations regarding operative treatment of traumatic head cases:

1. Uncomplicated oedema of the brain almost never requires operation.

2. Slight laceration of the brain with persisting oedema sometimes requires operation to prevent cerebral degeneration. The subtemporal method is the best operation.

3. Slight extracerebral haemorrhage seldom requires operation.

4. Extensive extracerebral haemorrhage from rupture of the middle meningeal artery with or without focal symptoms should always be operated upon.

5. Basilar haemorrhage seldom can be cured by operation. When operation is done it should be on selected cases for relief of pressure and usually by skin bone flap method.

6. Intracerebral haemorrhage cannot be cured by operation although pressure may be relieved.

7. Fracture of the skull by itself is of little importance except when compounded when it may produce meningitis unless made aseptic. All depressed fractures involving the entire thickness of the skull should be elevated. G W HOCHNER

Mofinié and L. nnois R storation of Fac al Mutla  
tions by St ips Taken from the Fr ntal R glon  
(Re tau t n de quelq s m tlato de la f c  
u moy n d l mb u stéopé t ut é e  
pedic l p l é d n l g f t l) Ly  
éd 9 7 cxv 56

A transplant to be used in plastic operations on the face must possess the stability desired to reconstitute a skeletal part with an assurance of vitality. The authors think that the frontal region is most appropriate in every respect. Its structure and content fulfills almost all need. Its tissue is deep and highly vascularized and is in the vicinity of the part to be repaired. A bone fragment can be removed leaving its periosteal cutaneous coverings adherent and this can be cut in the form of a pediculated strip so that it can be placed where required and still be kept by means of its pedicle in relation with the region from which it has been extracted and which nourishes it.

Five cases of mutilation have been treated without any mishap and the results have been excellent. W A BRE V

Kaufman A S Late l Sinus Thrombosis V  
M J 9 7 6

The author has had five cases of sinus thrombosis under his care which on account of atypical symptoms were not diagnosed until the operation.

The route of infection of the lateral sinus occurs in anatomical sequence as follows: first direct infection of the jugular bulb. This condition may complicate suppurative otitis media without a true septic involvement of the mastoid process. It occurs in children where the floor of the tympanum is wanting or is in the process of ossification. Second is the involvement of the venous emptying into the sinus particularly the emissary veins which become blocked with thrombi. Third and most common the direct phlebitis following necrosis of the bony structures of the mastoid and last the involvement from an acute suppurative otitis media.

The diagnosis is not difficult in typical case. There is usually a history of an acute or chronic suppurative otitis media. The patient notes a dull heavy sensation on the affected side of the head for a few days followed by a chill and a rise of temperature with a profuse sweat. The temperature may then come down to normal and the symptoms subside only to recur after a short interval indicating the presence of general sepsis.

The pathology of this symptom group is explained in the following way. As the clot becomes infected a small piece separates from the main portion and enters the blood stream producing the evidence of septic infection. This is shortly overcome by the phagocytic action of the blood. This process is continued until there is involvement of the venous system by metastatic emboli. When the upper part of the clot breaks down the lower remaining firm particularly the part in the jugular vein the symptoms are ushered in without warning. Easily and

free incision of the membrana tympani is the proper procedure to follow in trying to prevent an empyema or necrosis of the mastoid. The difficulty of diagnosis arises in cases when otorrhea is apparently the only sign of trouble. When a discharge continues purulent with the opening in the membrana tympani posterior and when there is indication of the membrane becoming further destroyed mastoid excitation is called for in order to save the patient's hearing and to prevent complications such as the one under discussion.

The author does not believe that it is necessary to uncover the sinus in every mastoid operation as when the bone is all appears healthy and the patient presents no symptoms of sinus trouble.

In hæmorrhagic mastoiditis the discharge from the ear usually is bloody but in sinus thrombosis the bleeding occurs only after the operative work is begun on the bone.

There is no harm in exposing a healthy sinus if it is done carefully while if a diseased condition is revealed it will be to prevent a subsequent operation and possibly save the patient's life.

The author continues with the statement that the treatment of the jugular sinus is a debated question. He is inclined to agree with those who believe in ligation in every case unless there is some strong contraindication to a prolongation of the operation for the following reasons: (1) It is possible that a small piece of infected embolus may be caused into the general circulation causing further complications. (2) The thrombus may extend down the jugula and after the clot is removed from the sinus and the free bleeding may come from the inferior petrosal sinus giving the appearance of a clear sinus and vein but later the venous clots break down and the infected debris is carried into the circulation by the blood coming from the facial vein and the veins below it. The author prefers ligation but believes that the neck should be opened and the flow through the internal jugular interrupted before the sinus is opened and the clot removed. M A B STEIN

Hank T H Report of a Case of Recovery from a Compound Comminuted Depressed Fracture of the Frontal Bone with Loss of Brain Substance. J. N. J. S. 1913 351

The case here reported is of a young girl's teen years of age who was injured in an automobile collision. When examined it was found that she had sustained a fracture of the skull involving almost all of the perpendicular portion of the frontal bone. The fracture was comminuted and depressed allowing particles of brain matter to escape. Her four upper anterior incisors were knocked out and a compound comminuted fracture of the lower maxilla was discovered. She was in extreme shock. No anæsthetic was given. Fragments of bone were removed and the surface was cleansed with sterile technique. The laceration in the dura was

not closed but a rubber drain three eighths of an inch was inserted so that both ends protruded from the wound. The skin was closed with silk-worm suture. The patient was given supportive treatment such as enemata a dose of one fourth of a grain of morphine sulphate calomel on the fifth day and argyrol was applied to the eyes.

A temperature of 100.4 F. developed on the fourth day which was the result of an infection of the jaw. This was opened and drained. Consciousness returned on the third day. On the tenth day the fractured jaw was reduced under anesthesia. The drain was removed on the fifth day and the patient from that time made an uneventful recovery.

In commenting on the case the author asserts that the loss of bone was extensive and that it was unwise to replace it with foreign material. The fracture was not over the motor area so that the likelihood of paralysis or epilepsy was not feared. No attempt was therefore made to protect the cortex as was suggested by Nicolson who used celluloid plates in place of the removed bone of the skull. The introduction of foreign materials is contra indicated in compound fractures in any locality for fear of introducing infection.

M. A. BERNSTEIN

**Real P. and Gauthier L. Prosthetic Treatment of Lower Jaw Fractures** (Cu a pro tetică delle fratture della mandibola) *Inn di odont.* Roma 1917 11 479

In the treatment of fracture of the body of the mandible if the fracture is recent and the loss of substance not more than 1.5 cm. the authors use a bridge or double arch. If the posterior fragment has no teeth the reduction appliance consists of a splint cemented on the anterior fragment in normal occlusion with the upper teeth and in a sort of saddle connected with the anterior splint by two pivots. This saddle leans against the posterior fragment pushing it into normal position.

If the loss of substance is more than 1.5 cm. but not exceeding 3 cm. the posterior fragment is pulled forward in cases where the loss exceeds 3 cm. the fragments are immobilized in normal position by a double arch and bands.

Fractures of the ramus generally heal without treatment but in some cases there is a vertical displacement which must be corrected.

When the loss of substance exceeds 3 cm. the fracture cannot heal and pseudarthrosis is almost certain. Osteosynthesis or bone grafting must then be tried and if this fails prosthetics may give some benefit.

W. A. BRENNAN

**Bichelonne H. Cranial Wounds** (Blessures du crâne) *Arch d'ntd et ph* 11 1 Par 19 1871 61

In the military hospital of which the author has charge 1910 patients with cranial injuries were received between February and August 1916.

Of these 967 had been operated upon at the front. The other 963 had apparently only scalp wounds. These 967 scalp wounds were systematically explored by the surgeons at the base hospital and 207 or 21.95 per cent gave positive results. This large percentage shows the necessity of the systematic exploration of all cranial wounds in war.

W. A. BRENNAN

**Nonprofit and Courty. Cranial Gunshot Wounds in War Surgery** (Blessures du crâne par projectiles de guerre dans la chirurgie de l'avant) *Arch de méd et pharm mil* Par 1917 1871 790

Of 900 wounded treated in the authors ambulance 299 were cranial injuries. 144 of these so extensive that they were inoperable. 131 were trepanned. Of the 131 the dura mater was non perforated in 50 and perforated in 81. The figures show that the proportion of perforated to non perforated in the whole series was about four to one.

There are various factors which enter into the prognosis as regards life and functional preservation in cranial wounds viz. the state of the dura, the type of fracture, its position, the presence or absence of projectiles, the extent of cerebral lesions and their position. Of these the more important as regards life are the state of the dura and the presence of projectile particles. If these latter are large the dura is always more or less extensively ruptured. The real gravity of cranial lesions can only be judged by the study of collected statistics of cases extending over a long period.

The authors' 131 trepanned cases resulted as follows: (a) with intact dura mater trepanned 49 evacuated 44 dead 4 in course of treatment 1; (b) with perforated dura mater trepanned 82 dead 4 evacuated 3 in course of treatment 9.

These figures show the value of the condition of the dura with regard to prognosis.

With regard to intracranial projectiles until recently their presence was considered fatal but recent views have shown that wounded men with a retained projectile have no higher mortality than those cases in which the projectile has passed through and that the mortality in cases where a projectile has been immediately extracted does not seem less than in similar injuries where the projectile was not extracted.

Marie has stated that he observed 31 old cases with intracranial projectiles in 29 of which there was absolute tolerance and in only 2 cases were there epileptiform crises.

W. A. BRENNAN

**Harris C. T. and Nissen H. A. A Series of Fractured Skulls from the Surgical Records of the Boston City Hospital 1902-1917** *Boston M & S J* 1917 1871 80

The statistics of the Boston City Hospital here given are from 1900 to 1917.

A diagnosis of fracture of the skull was made 540 times.

The paper deal with the definitely proved cases which comprise 334. The cause as given in the histories were as follows: accident 71 cases, alcohol 60 cases, suicide 8 cases, assault 15 and unknown 1 case.

The type of injury as follows: simple fractures 186 cases, compound fractures 14, depressed fractures 114.

The number of operative cases were 487 per cent non-operative cases 53 per cent. Of 123 operated cases 60 were relieved and 63 died. Of the 207 non-operated cases those relieved were 14 while 93 died. The deaths which resulted from one to several weeks after operation were due to septic meningitis, epistaxis, pneumonia, brain abscess and delirium tremens. The compound fractures required immediate operation at least within twenty-four or thirty-six hours after the time of the injury. The simple fractures unless definite depression was made out were operated upon from thirty-six hours to ten days after injury.

The operative indications were (a) increasing intracranial pressure, (b) nausea, vomiting, choked disk, or focal signs.

Fracture of the temporal bones occurred in fifty cases or 5 per cent. Fracture through the bony wall of the auditory canal was found in many. Bleeding from one or both ears was not considered a diagnostic sign.

Fracture of the occipital bone occurred in thirty-five cases or 0.7 per cent. The operative result in thirteen compound fractures was three recoveries.

Fracture of the base occurred in sixty-four cases or 9.4 per cent.

The percentage of cerebral edema was very proportional to the change from the normal mental condition. In those cases where there was dilated or fixed pupils, the prognosis was unfavorable. In those cases in which a small portion of bone was removed, the dura being left intact, the pre-operative symptoms did not clear up. Thus the author concludes that a complete decompression is necessary not only to open the bone structure but also the dura as well. Suture of the lacerated dura was not successful because of the inability to approximate its edges. There was no advantage in using a rubber drain since immediate closure of the dura allowed the same as good result. In those cases where a rubber drain was used, infection followed with a fatal termination.

In conclusion the author emphasizes the following points:

1. Routine two-hour blood pressure readings for the first twenty-four to forty-eight hours.
2. Lumbar puncture in all cases.
3. Fundus examination at entrance.
4. X-ray examination of all head injuries.
5. Withholding of morphine until a definite diagnosis is made.
6. Thorough neurological examination.

M. A. B. R. T. E. N.

Lapayre N. End Results of Trepanation for Wounds of the Head (Résultats de la Craniotomie pour les plaies de la tête). *Bull. Int. Méd. Sc. d. Chir. d. Pa.* 1917, 1, 2, 48.

Lapayre's report includes 20 cases of cranial injury without dura mater lesions. All have recovered after trepanning. The condition ten years later shows that 2 have returned to military duty. There were 4 cranial encephalic wounds, 27 of which died of infection within fifty days after operation. None died later so that the prognosis of definite recovery after an interval of sixty days is very probable.

No plastic operations have been done on the survivors. Two required a secondary operation one for hernia and the other for epileptiform seizures. Only two of the thirteen can be said to be definitely cured. The others have a greater or less degree of cephalalgia and vertigo. Marked aphasia in two cases has almost disappeared as have slight motor sensory disturbances in three other cases. However complete paralysis in one case remains.

Complete recovery the more is very rare in penetrating cranial wounds but when the lesion in the Rolandic zone the subsequent troubles are slight and are compatible with an active life.

The result of case has shown that the factor of seriousness in a cerebral lesion is its depth rather than its extent which follows from the difficulty or impossibility of complete disinfection.

Drache recently reported the psychological examination of 4 old operated cases. Four were normal, 3 subnormal and 7 intellectually deficient.

The future trepanned cases must be considered from two points of view. As regards survival, the defect is complicated, become more rare the more remote the cause from the time of injury. From the psychological point the prognosis is very poor.

In discussing the report Tuffier said that the question of the accident consecutive to craniocerebral lesions had been taken up at the International Surgical Conference. The facts showed that grave infectious craniocerebral wound is much more rare than is supposed.

In more than 600 cases reported there were 676 partial epilepsies, 64 late cerebral abscesses, 32 cases of late meningitis and 54 cases of late cerebral hemorrhage. W. A. B. R. T. E. N.

Elb, C. A. Clinical Methods for Its Recognition and Treatment. *Int. J. Med. Sci.* 1917, 1, 4.

The name hydrocephalus originates with the term medical author who included under this term all varieties of pathological conditions arising from hemorrhage of the scalp to distension of the ventricles of the brain.

Investigations have shown that the main if not the only source of the cerebrospinal fluid is the choroid plexus of the ventricle. Chas. Mott calls choroid glial that the secretion almost completely normal and that its rate varies and is affected by a number of factors. The rate of flow in animals

increased by asphyxia by anæsthesia and by many drugs and organ extracts especially by extracts of choroid plexus or brain tissue. The only glandular substance known to have a specific inhibitory effect on the secretory activity of the choroid plexus is thyroid extract.

Under normal conditions the cerebrospinal fluid leaves the ventricles and is absorbed from the sub arachnoid space of the brain and spinal cord directly into the blood stream. Investigators have shown that no fluid is absorbed by the walls of the ventricles that perhaps a little may enter the blood stream by the veins of Calen but that the greater part is absorbed by the villi of the arachnoid membrane over the convexities of the brain.

Experimental and clinical evidence shows that there is a circulation of cerebrospinal fluid and that it follows a regular course passing from its source in the lateral ventricles into the third and through the fourth into the fourth ventricle leaving the fourth ventricle by the foramina of Magendie and Luschka the greater part of the fluid passing downward in the spinal canal on the posterior aspect of the spinal cord. There is believed to be a steady flow of fluid downward behind the spinal cord and upward on its anterior surfaces spreading over the convexities of the hemispheres where it is absorbed into the blood stream.

This scheme of circulation shows why spina bifida is so apt to be complicated by hydrocephalus and why the hydrocephalus is so apt to become aggravated after operative treatment of the spinal condition. In spina bifida there is an obstruction to the downward passage of fluid in the spinal canal and hence a retention of fluid in the ventricles.

The amount of fluid in the ventricles and in the subarachnoid space is kept within normal bounds by the proper balance between the amount secreted by the choroid plexus and the amount absorbed by the arachnoid villi. If the secretion is retained in the ventricles by an obstruction in the aqueduct of Sylvius or in the foramina of Magendie and Luschka then the fluid collects in the ventricles the latter become distended and the typical obstructive internal hydrocephalus results.

If there is either a hypersecretion of fluid so that more is secreted than can be taken care of by the arachnoid villi or if the absorptive power of the arachnoid is diminished or a combination of these two conditions obtains the secretion collects and distends the ventricles producing the non obstructive hydrocephalus which is divided into that due to hypersecretion and that due to diminished absorption.

The term hydrocephalus almost always means internal hydrocephalus no matter whether the retention of fluid is due to obstruction diminished absorption or hypersecretion. A slight increase of fluid in the subarachnoid space over the hemispheres is sometimes met with but considerable fluid worthy of the name of external hydrocephalus is exceedingly rare.

To the three different types of hydrocephalus

that due to obstruction that due to diminished absorption and that due to hypersecretion Frazier adds a fourth type which he calls occult hydrocephalus the accumulation of fluid in this variety being due to lack of balance between the secretion and absorption of the cerebrospinal fluid.

For the differentiation of these various types a method has been devised using phenolsulphonphthalein as an indicator. Normally phenolsulphonphthalein introduced into the ventricles appeared in the urine in from ten to twelve minutes and during two hours 12 to 20 per cent was excreted. Introduced into the subarachnoid space the dye appeared in the urine in from six to eight minutes and 35 to 60 per cent was excreted in two hours. The dye passed readily from the ventricles to the subarachnoid space and appeared in the spinal fluid in from one to three minutes.

A lumbar puncture is done a cubic centimeter of fluid is withdrawn and one ccm of sterile neutral phenol ulphonophthalein is injected. If less than 30 per cent of the dye is excreted in the next two hours there is diminished absorption from the subarachnoid space. In several of the patients not a trace of dye appeared in the urine in four to six hours.

In a few the ventricular injection was made. In infants the ventricle is punctured through the lateral angle of the anterior fontanelle one ccm of fluid withdrawn and one ccm of phenolsulphonophthalein injected. A spinal puncture is then made and if the dye fails to appear in the spinal fluid within ten minutes the case is one of obstructive hydrocephalus.

To determine whether or not there is hypersecretion of the cerebrospinal fluid a spinal puncture is done every day or every other day. When the secretion is normal the quantity and pressure of the fluid becomes steadily less after the first two or three punctures. In hypersecretion however the amount of fluid obtained and the pressure under which it escapes remains constant for long periods.

Unilateral obstructive hydrocephalus from obstruction of the foramen of Monro undoubtedly occurs.

The forty patients with chronic hydrocephalus were divided as follows: obstructive hydrocephalus 10 cases non obstructive hydrocephalus 30 cases non obstructive diminished absorption 18 cases non obstructive hypersecretion 6 cases non obstructive diminished absorption and hypersecretion 6 cases.

Many methods of treatment have been tried many attempts have been made to drain the fluid from the ventricles to the pleural cavity to the retroperitoneal cellular tissue to the venous circulation to the subdural space and to the subcutaneous tissues of the scalp but all failed regularly. Drainage to the outside of the body is an old method which Henschen in 1911 concluded after an exhaustive study is fatal in 90 per cent of patients.

In hydrocephalus due to obstruction puncture of the corpus callosum has given very satisfactory results and a complete cure may be effected.



muscle on a level with the hyoid bone. It was not quite as large as a small bantam egg. The tumor had a cartilage like feel, it was freely movable from side to side and also up and down. The thyroid gland was apparently normal. When removed the specimen consisted of five nodules varying in size from a pea to a pecan, encapsulated and interconnected by connective tissue bands. Microscopic examination revealed papillary adenocarcinoma of the thyroid tissue.

The author states that carcinomatous proliferation of the lateral aberrant thyroid is very rare, there being only five such cases reported in the literature. His own patient was the youngest case ever recorded. The preponderance of the female sex over the male is five to one.

The surgeon should bear in mind in the differential diagnosis of tumors of the neck the possibility of a lateral aberrant thyroid, especially if the patient is a female and the tumor has a tendency to fluctuate during menstruation. Before the tumor is removed, unless carcinomatous as shown by rapid growth and infiltration of neighboring tissues, the presence of a normal thyroid should be ascertained as the aberrant thyroid may be the only one that the patient has. P. G. SKILLERN, JR.

Miller, C. S. Exophthalmic Goiter. *N. Y. M. J.* 1917, cvl, 120.

Statistical deductions made by Miller state that deaths from diseases of the thyroid gland in Philadelphia from 1906 to 1915 inclusive show that the proportion of exophthalmic goiter to other diseases of the thyroid was three to one. He further asserts that disease of the thyroid gland is increasing. Hardilicka, of the United States National Museum, has shown that in certain portions of the Indian tribes goiter exists at the rate of 3 per 1,000 while in portions of the negroes it exists at the rate of 61 per 1,000. The statistics which Hardilicka cites are those from the United States, England and Wales.

The greatest number of deaths from goiter occur between the ages of forty and forty-nine. The explanation for the deaths occurring at this period of life, the author believes, are due to the mental and physical strain incident to active adult life.

The death rate from goiter is higher in cities which can be explained by the fact that city life is associated with a greater strain. The idea that infected water or water rich in certain minerals is a direct cause of goiter has not been proved to be true and the density of population has little or no effect on the prevalence of goiter.

The author concludes with the following summary: Inasmuch as it develops in persons subject to nervous strain, possibly due to the influences of their environment and at a period of life when this strain is most acute and from the indications of overactivity of this gland is presented normally in certain states of health such as pregnancy and menstruation, it is reasonable to infer that all causes point to the development of some poison within the

body due to faulty metabolism. In turn this faulty metabolism of the body is influenced by the habits and life of the individual. Therefore the theory that nervous enervation or nervous control is directly responsible for the development of goiter in its various forms and the nervous symptoms manifested in a well developed case are in turn secondary to the reflex effect of the goiter constitutes a vicious circle. M. A. BERNSTEIN.

Dunhill, T. P. Discussion of the Surgery of Exophthalmic Goiter. *Lancet*, Lond. 1917, cxviii, 883.

Dunhill has performed the operation for removal of thyroid tissue in fifteen hundred cases. In his paper he discusses the theories which are maintained regarding hyperthyroidism and the removal of thyroid tissue for its relief.

Mackenzie is quoted as saying that if it were certain that the cause of the disease is hypertrophy and overactivity of the thyroid gland, removal of the gland would be the most rational treatment.

McGarrison maintains that Graves' disease is not essentially due to thyroid gland activity.

Farrant says that if hyperthyroidism were recognized and treated from one to three years earlier Graves' disease would cease to exist.

Kocher, the Mayos, Crile and the author believe that the disease can be practically cured by removal of sufficient thyroid tissue when there has not been visceral degeneration and that it can be greatly ameliorated in cases when this has occurred.

The author also says that while the cause of Graves' disease is yet not known it cannot be denied that the disease is a manifestation of excessive and disordered functional activity of the thyroid glands. By removal of a sufficient amount of the gland its hypersecreting action is overcome. Sufficient gland tissue can be left to continue the physiological requirements of the body.

The author was converted to the surgical treatment of exophthalmic goiter eleven years ago. He had had six cases under observation. They were treated medically with no benefit. One case was operated upon and the right lobe was removed. The patient made a remarkable recovery. The other five were immediately operated upon with good results. All these cases were operated upon under local anesthesia. The author later became convinced that if sufficient gland tissue is removed the symptoms disappear and the patient is restored to health.

Kocher is quoted as saying in 1907 that it is rarely necessary to resect a part of the remaining gland after excision of one side and he has saved 83 per cent of all his cases. The author did not find this true in his practice. While the patients showed general improvement and an amelioration of all symptoms resulted, they were not definitely cured. It was found necessary in some cases to remove sufficient gland tissue to place the patient on an industrial plane.



The author is of the opinion that it is hardly possible to estimate the size of the gland during the operation since the gland does not permit free exploration being anatomically so situated that its proportions cannot be definitely determined. It was found that after removal of one lobe symptoms would still persist indicating toxic absorption. It then became necessary to perform a second operation to relieve the remaining symptoms. In one case where two operations were performed and the patient made a fairly good recovery there was nevertheless a remaining tremor and a rapidity of the heart. She was again operated upon and a portion of the gland tissue removed from behind the trachea.

this tongue like process from the middle lobe was previously described by the author.

In conclusion the author states that he has also found the removal of one lobe and the isthmus sufficient to give unquestionable improvement. The removal of rather more than half the remaining lobe almost always places a patient in a state of health which enables her to work and play and to feel well while doing so. Occasionally a third operation is necessary.

The author cites several interesting and instructive cases demonstrating unusual symptoms of emaciation on extreme proptosis and marked distal thy

M A BERNSTEIN

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

Gask G E and Wilkinson K D Presenting  
Gunshot Wounds of the Chest and Their  
Treatment B J M J 9 78

This paper is concerned especially with the treatment and cause of death of 36 cases of chest injuries covering a period of eighty-five days of different phases of warfare. All cases of penetrating wounds of the chest coming to the casualty clearing station are included no matter how serious the complication. The cases have been followed to the base or to England so that the final mortality is included.

Disregarding complicating wounds the causes of death are classified as follows: (1) death in a few hours from a very severe and ever injury which can seldom be a direct surgically death in the casualty clearing station after a few days usually from local sepsis. (2) death at the base from sepsis. Prolonged illness is almost always due to sepsis. Treatment should therefore be directed to the elimination of infection in the chest wound as in any other wound.

The infection is carried in by the missile cloth and splinters of bone by air sucked in or by extension in an open wound. If the chest is a large open wound through which air is sucked immediate temporary skin suture is attempted without anaesthesia. All other cases are allowed to rest for one or two hours to recover from shock. The patient is then examined and if the missile retained an X-ray is taken.

The indications for early operation are: (1) a ragged wound of the soft parts; (2) compound fracture of the ribs; (3) bleeding from a parietal wound; (4) suction of air into the pleural cavity; (5) retention of a large foreign body in an accessible position; (6) pain often from splinters of bone scratching the lung; (7) rapidly increasing hemothorax complicating pneumothorax.

Small clean wound including those with small

retained missiles are treated on general medical principles. Hemothorax if large is aspirated. If clinical signs of infection develop the rising pulse, fever, increase in effusion or pneumothorax, a sample of blood is removed for bacteriologic examination. Cyano is treated by the inhalation of oxygen for five or ten minutes every half hour.

Valve pneumothorax is treated by electrolysis. Surgical emphysema often present requires no treatment. Air in the anterior mediastinum may cause an absence of precordial murmurs which may closely simulate pericarditis. Massive collapse of one lobe of the lung without known cause may occur.

Operations performed as soon as possible after recovery from shock. Wounds of the soft parts unless perfectly clean are excised. Splinters of bone are removed and sharp edges of bone trimmed. The chest is closed in layers. If part of the pleura is missing muscle is used to bridge the gap or if necessary a skin flap from elsewhere. The chest must be closed.

Foreign bodies not including rifle balls are usually held in fragments one inch by one and one half as a rule associated with pieces of rib and clothing. The choice of route for the removal of a foreign body depends on its position relative to the wound of entry. When possible thoracotomy through the wound preferred or by free intercostal thoracotomy with removal of the rib. The chest route is probably the fifth rib in mid or anterior axillary line. If the foreign body not visible the hand is introduced to feel for it. Lung tissue is incised and sutured as necessary. The blood of a hemothorax is evacuated. Bleeding does not recur even as early as twelve hours after injury.

Repair of the diaphragm is best done from above then any necessary repair of an injury to hollow viscera is executed from below. With multiple injuries of the chest and abdomen it is probably better to deal with the abdomen first but the chest should if possible be attended to at the same operation.

Infected hæmorrhage can be prevented in some cases by careful excision of the wound. Infection with anaerobic bacilli is the most benign mixed infection is always severe streptococcal especially if hæmolytic is most dangerous. A diagnosis of infection is rarely made before the third day. The only positive evidence is a foul smelling fluid and positive cultures. Clinical signs may appear before a culture can be obtained from the fluid. Treatment calls for ample incision washing the cavity with eusol then closing the chest in layers. If closure is effected it may remain closed and become sterile. The lung expands and adhesions form to hold it out. Respiratory distress is also much less. If infection persists as determined by postoperative examination it should be opened and drained.

Any patient on whom an intrathoracic operation is to be performed should have general anaesthesia. Chloroform is generally used in these cases.

Contra indications to operation are (1) shock and collapse if persistent and marked (2) small clean wounds without evidence of serious injury (3) retention of a small body in the lung or mediastinum (4) collapse of the opposite lung as indicated by inspiratory retraction of the chest wall on the other side.

The usual operative technique is a six inch incision over the wound or at a site more favorable with the resection of four inches of rib. An alternate method is intercostal incision with a rib spreader. The pleural cavity is palpated and cleansed by inserting the whole hand. The wound in the lung is next explored and the wound sutured. If necessary a wedge of lung tissue is first excised.

The total number of cases was 365 and of these 76 or 0.8 per cent died and 289 recovered.

Deaths from complications of the chest wounds were as follows: head 6 abdomen 14 spine 4 heart 4 large systemic vessels 2 multiple wounds 14 lethal gas 1 making a total of 45 cases.

Causes of death from chest injuries were as follows: shock and hæmorrhage 19 sepsis 10 bronchitis 2 making a total of 31 cases or 9.6 per cent.

General results may be summarized as follows: There were 104 cases operated upon of which 83 recovered and 21 or 20.2 per cent died. The number of cases not operated upon were 61 of which 206 recovered and 55 or 21.07 per cent died.

C. A. HEDBLOW

#### Hathaway F. J. The Early Operative Treatment of Penetrating Gunshot Wounds of the Chest B. I. V. J. 1917 : 582

Prompt recognition of suitable cases and early operation in chest injuries saves many lives and shortens convalescence. Clean through and through wounds caused by rifle bullet or shrapnel may require aspiration of the hæmorrhage but not early operation. Large exit wounds caused by such missiles striking bone should be sewn up if possible after removing all loose fragments and excising the

wound edges. Tangential wounds with fragments of rib and pleura driven into the pleural lung and sometimes penetrating the diaphragm must be cleared of damaged tissue cleansed and the diaphragm closed. Damaged tissues in large through and through wounds caused by shrapnel or high explosives must be excised and the wounds closed if possible by sutures. Rifle bullets or shrapnel balls retained in the chest may be left unless sepsis ensues. Large jagged pieces of shell causing much laceration and carrying in fragments of clothing must be excised if accessible.

Accurate X-ray localization is essential. Novocaine is the best anaesthetic. No intratracheal pressure apparatus is necessary. Wide exposure is essential. If there is already a large opening with pneumothorax the hand is introduced and the foreign body removed. If the opening in the pleura is small with but little sucking of air a small incision is made and the lung grasped with toothed forceps and pulled into the incision. The hæmorrhage can then be evacuated and any metal fragments seen or felt can be removed. If imbedded in the lung the track of the missile is followed up with a knife or cautery or the finger is inserted. Any hæmorrhage is controlled and the wound in the lung if large is sutured. The pleural cavity is washed out with Dakin's solution or flavine. If possible the pleura is then completely closed leaving any infection to be dealt with by the natural power of the pleura to dispose of infection which has been shown to be very strong. If there is a gap in the parietal pleura it may be stitched to the lung and visceral pleura. Where skin edges cannot be brought together the wound is firmly packed.

In general treatment of wounds of the chest follows the same line as those of the abdomen: head, knee or other joints they require just as early operation and it will be found that results are just as good.

C. A. HEDBLOW

#### Rosini L. Cancer of the Male Breast (Cancro della mammella dell'uomo). *Gazzetta medica di Poma* 1917: 261

Rosini reports a case of carcinoma of the breast in a man forty years old. Examination showed the left breast increased to the size of a small melon. The skin showed large veins radiating from the mammary areola. The tumor was only slightly mobile, hard on palpation but fluctuant in a point toward the apex about the size of a 5 centesimi piece. The surface of the skin here was bluish in color. Two hard glands were noted in the axilla. There was a bloody discharge from the nipple. The symptoms and the history of the case suggested carcinoma and radical removal was done.

Microscopic examination of the tumor showed infiltrated epithelial cords in the atrophied acini of the mammary gland and the presence of fibrous connective tissue with numerous epithelial columns in the lymphatic space. The man remained well for some months but died with the phenomena of

pulmonary metastases The author thinks it is probable that this case originated in a slight trauma Tricomic found that among 751 tumors of the male breast 649 were carcinomata W A BRUNAN

Fay O J Traumatic Injuries to the Thoracic Duct 1111 M T 9 55

Reviewing the literature of this subject the author takes up the mechanism of the injuries their site and character symptomatology diagnosis prognosis and treatment by suture implantation on ligament tamponing and pressure

Regarding treatment suture of the duct is the procedure of choice Where suture is impossible the duct should be ligated or clamped with forceps Where neither of the procedures can be successfully carried out because of the general condition of the patient or the difficulty encountered in locating the injury to the duct the wound should be firmly tamponed

In the treatment of injury to the duct within the thorax exposure with suture or ligation of the duct is impracticable conservative treatment a matter not of choice but of necessity The first aspiration usually precedes diagnosis whether it be undertaken purely for diagnostic purposes for the relief of dyspnea and other distressing symptoms of an intrathoracic effusion Repeated aspirations are necessary hence the increased pressure threatens life but only then for ligation a operation the fluid is usually replaced with great rapidity the negative pressure within the thorax favoring its escape and the body thus deprived of an essentially valuable fluid capable of being absorbed without any compensating mechanical effect It may also be assumed that the pressure exerted by the escaped fluid upon the thoracic duct serves in some measure as a tampon thus favoring the development of a collateral circulation below the point of injury

To combat the loss of nutrient chyle the patient's strength must be maintained by generous feeding

P G SILLER JR

Larralde A One Thousand Applications of Artificial Pneumothorax (U. Miller de J. P. t. d. l. p. m. t. f. l. G. méd. d. l. d. c. 9. i.)

Larralde gives his personal experience with the Forlanini method of artificial pneumothorax since March 1914 He made a thousand insufflations in about one hundred patients

The indications for pneumothorax are chiefly two (1) in acute forms such as those of caseous fibrocavitary ulcerous cavitary caseous pneumonia and tuberculous bronchopneumonia (2) in pulmonary hemorrhages It is contraindicated in hyperacute generalized forms and in bilateral lesions

Radiography should be used ( ) before applying pneumothorax to know if it is indicated and to

show where the puncture should be made (2) to follow the progress of the pneumothorax and to find the means of renewing insufflations (3) to diagnose pleural adhesions

Of the 600 patients treated by Larralde 68 have been followed In all cases the pneumothorax has been applied to hemoptysis the result has invariably been gratifying When the insufflation was sufficient hemorrhage ceased immediately When atherosclerotic difficulty in the penetration of the gas into the pleural cavity was repeated about four hours later The second administration is generally effective and permits a larger amount of gas to be introduced

In all cases of tuberculosis pneumothorax has already been effective in acting upon the fever digestive disturbances and the general state When the quantity of gas introduced has been sufficient to cause collapse

Of the 68 cases followed 18 have been for 10 and 1/2 years without any symptom of the recurrence of the disease Eighteen cases have shown improvement 4 cases have been without result In 6 cases it was impossible to realize the pneumothorax or useless to continue it owing to the patient's state In 8 cases there was a prolongation of life but the patient ultimately died from the disease In all these cases the patient had derived no benefit from hygienic and medical treatment

The author gives his opinion that there is no other method which in acute febrile progress enables the patient to escape tuberculous collapse and gives the results as those indicated and he therefore thinks that the Forlanini method is the most effective method available for the treatment of pulmonary tuberculosis W A BRYAN

Pélu nd D guet Clinic of Rad. copic R. e. r. e. o. t. e. Rem. t. S. qu. le. P. l. al Eff. on Tr. umatic or Sp. ntan. ou. (I. h. r. l. t. l. d. p. h. e. m. e. t. p. l. u. t. m. t. q. t. t. t. c. ) I. d. ed. P. 9. 4. 8

Very little work has been done in the radiology of the end results of pleural effusions especially traumatic During the war the authors had occasion to observe and study both spontaneous and traumatic effusions and they desired especially to make comparisons between the different varieties

Also the authors studied 132 cases of pleural effusions by radioscopy These were cases of hemothorax or purulent pleurisy due to penetrating wound of the chest emphysema consecutive to acute lobar pneumonia or spontaneous serofibrinous pleurisy of almost certain tubercular nature They desired to ascertain what traces of the condition remained in the pleura or in the lung after a considerable interval varying from a few months to a few years the effusion having ceased to evolve

The conclusions to which the study of their cases led them are thus formulated

1 Simple hæmorrhax due to war wounds which have not suppurated leaves in general no persistent traces either on the pleura on the diaphragm or on the lung. Extensive hæmorrhax however which has persisted despite several punctures may in undergoing organization after the manner of hæmatoma of the dura mater produce extensive adhesions between the two folds of the pleura but this is exceptional.

2 Cases of purulent pleurisy consecutive to pyothorax after penetrating wounds of the chest even if accompanied by prolonged or fistulous suppuration leave behind a condition of limited adhesions between the pleural folds such adhesions as a rule gradually becoming attenuated. It must however be observed that if intervention is carried out early and the site of incision well chosen the pleural cicatrix will be less extensive. The same applies to purulent pleurisy consecutive to acute lobar pneumonia.

3 Spontaneous serofibrinous pleurisy of tubercular origin either alone or associated with pulmonary lesions leaves behind extensive adhesions which are sometimes generalized over the entire surface and which disappear very slowly. Their persistence is much greater than the previous variety.

4 The existence of these various kinds of adhesions may be clinically manifested. By radio-scopy alone their extent and their influence on the respiratory function can be demonstrated.

Of the 152 cases reported 108 were spontaneous pleuritis of tubercular nature 3 were metapneumonic purulent pleuritis and 41 were traumatic pleural effusions.

W A BRENNAN

## TRACHEA AND LUNGS

McCannel A D Bronchoscopy and Oesophagoscopy *J Lancet* 1917 cccvii 704

The instruments in use today for bronchoscopy and oesophagoscopy are of two kinds those with out lighting apparatus the light being projected from without into a tube and those in which the light is part of the instrument the latter are preferable. Bronchoscopy and oesophagoscopy are done for diagnostic and therapeutic purposes usually under cocaine anaesthesia in adults and preferably under general anaesthesia in small children.

The diagnosis of a foreign body in the air passage usually depends on the symptoms of cough usually paroxysmal and constant dyspnoea usually inspiratory but sometimes expiratory or both and always worse during paroxysms of coughing elevation of temperature from irritation and later from septic absorption from a localized inflammatory area or from such complications as pneumonia. Pus is often noted but is apt to be vaguely localized.

X-ray examination is of great value if the foreign body shows opacity to the ray. Physical signs if

present are valuable often in indicating the side the foreign body is on especially in the case of negative roentgenograms.

H H GREILICH

Olivier R Fifteen Late Extractions of Intrapulmonary Projectiles (A propos de quinze extractions de projectiles intra-pulmonaires chez d'anciens blessés) *Bull et mém Soc de chir de Par* 1917 xliii 2080

In the 15 cases operated upon by Olivier the extraction was made at least five months after wounding. Local anaesthesia was employed in all cases. Three of the cases were operated upon by the Duval method by the transpleural route with pneumothorax. Two of these cases recovered only after a purulent pleurisy and the third after a serous pleurisy. The author thinks this method should be accepted only as a necessity where a wide field of vision is indispensable. Marion's method has been employed in 8 cases. In this the projectile is directly extracted after a prior fixation of the lung to the thoracic wall. All these patients recovered in from ten to fifteen days. In a few cases Olivier employed the method of Petit de la Villevon in which the extraction is made by the forceps under radiologic control. This method is rapid and less bloody than others as the muscular and bony tissues are scarcely involved surgically speaking.

For projectiles situated in the hilum region Duval's method is applicable. For projectiles outside the hilum region and accompanied by suppurative hæmoptysis abscess etc. Marion's fixation method should be employed. Petit de la Villevon's procedure is excellent on condition that the hilum is not approached and that there is neither inflammation of the lung hæmoptysis nor pus in the sputum.

As regards the end results the first two methods showed always the existence of pleural reaction even when the postoperative course was apparently otherwise excellent. Such reaction may be demonstrated radiographically by marked obscuration of the pleural cul de sacs and immobility of the corresponding hemidiaphragm. Such end results are entirely lacking when Petit de la Villevon's method is followed and this method has therefore in this respect great superiority over the others.

W A BRENNAN

## HEART AND VASCULAR SYSTEM

Escande F and Brocq P Two Cases of Projectiles Well Tolerated in the Walls of the Heart (Deux cas de projectiles inclus dans les parois du coeur et bien tolérés) *Rev de chir* *Par* 1917 li 268

The author reports two cases of projectiles lodged in the wall of the heart and well tolerated. In one case the projectile a rifle bullet was radiologically fixed in the lower narrow part of the

left ventricle. In the second case a fragment of shell was similarly demonstrated in the anterior wall of the heart.

Since the beginning of the war 14 cases of this kind have been published. In 7 of these the projectile was lodged in the heart wall and in it was more or less free in a cavity. In 5 of these 14 cases the tolerance was almost perfect. Seven were operated upon of which 4 recovered and 3 died after operation. In one case there was later migra-

tion with recovery. One died without intervention.

In 1899 Loison collected 14 cases of foreign bodies in the heart. In all these cases with one exception death followed rapidly. Judging from the number of cases which show after a long interval that the heart can tolerate the presence of a foreign body the author shares the opinion of Delbet and Walter that in such cases abstention from operation should be the rule.

W. A. BRENNAN

## SURGERY OF THE ABDOMEN

### ABDOMINAL WALL AND PERITONEUM

Roedelus E. Th. P. top. tl. e. Tre. tment of  
Difuse Peritonitis. D. t. l. ed. W. cl. l.  
1917. VI. \

The author thinks that no surgical disease calls for such skillful and prudent treatment as diffuse peritonitis. He gives a detailed description of the various measures observed in his practice which generally are not elaborated on the fundamental principles of the surgical treatment of peritonitis. He makes a conclusion of the source of infection, emptying of the intestines and providing an outlet for that which forms. The further treatment proceeds from the condition in the peritoneum, fixation of the heart and of pulmonary complications and the danger which threatens the gastrointestinal tract.

Among the various means used by Roedelus may be mentioned lavage according to Kehns method, systematic intravenous infusion of saline solution during operation, adding decaolin or dextralin. After operation the patient is wrapped in warm coverings, nothing is given by mouth during the first fifteen hours. Then cold is not used, is given every half hour until the patient is introduced subcutaneously intravenously or per rectum so as to obviate omitting catheterization is done after twelve or eighteen hours if the patient has not urinated spontaneously. Morphine combined with atropine is used during the early days when necessary.

The author describes his method of draining the wound. He says never seen visceral prolapse. He sees no advantage in the cold operation. Treatment of wounds. When the patient is able to stand a flannel band is fixed around the abdomen. Such a bandage does not prevent hernia but the author has not generally found that they occur. But in any case he does not operate upon a postoperative hernia until from nine to twelve months have passed. Other procedures adopted by the author are abdominal massage, application of heat to the abdomen, rectal glycerine injection, etc.

W. A. BRENNAN

Vargas M. P. Umbilical Cutaneous Agnecia  
Appendectomy. T. el. H. u. s. After Birth  
Recovery. (1917) p. 1. m. l. l. append  
t. m. p. t. d. l. l. l. p. e. del  
me. t. c. r. ) 5. l. d. m. d. d. 917. lx  
80

The infant reported showed a malformation described by Blum as gastroschisis or gastroschisis in which the abdominal wall is lacking and the viscera contained in the cavity herniate. The umbilical and peritoneal regions are covered not by skin as normally but by a thin gelatinous substance identical with that forming the umbilical cord. There are no other malformations.

The infant was brought to the author. Twelve hours after birth Vargas proceeded to operate immediately after making sure of hæmostasis in the umbilical cord. He attempted to draw the skin edges together over the defect by sutures without disturbing the gelatinous covering but the tearing of the sutures, rupture occurred and the intestinal organs herniated. The author had much difficulty educating them and was obliged to use his previous stitches. The herniated intestine revealed the peritoneum 3 cm long in accordance with the usual rule to move a presenting appendix appendectomy was done and the stump invaginated. The author then replaced the organs in the cavity cut away the gelatinous abdominal covering and proceeded to suture. The peritoneum was first sutured to the muscular and cutaneous coats drawn together leaving a cicatrix 7 cm long. The operation was performed under chloroform and ether narcosis. After ten days the child was in normal condition.

The author gives a stellar sketch of congenital malformation of this type. Ballantyne mentions only 6 but the author himself sees 5 of which he gives short descriptions. These include the present case. On other cases in which he operated resulted successfully although the child succumbed later to bronchopneumonia. The only treatment is in medical operation. Kocher has published a list of 24 operated cases with recovery.

The author remarks that this is the only reported

case of a successful appendicectomy in an infant so young. Hallet has published a list of 58 cases in which infants were operated upon within thirty six hours of birth 15 deaths resulting

W A BRENNAN

**Veau Hernia and Appendicitis in the Child**  
(Hernies et appendicite chez l'enfant) *Bull mēd*  
Par 1917 LVIII 492

Veau has found so many cases of concomitant appendicitis in children with inguinal hernia that he now systematically examines the hernia in such cases. Where both are found to co exist the question arises as to what operative technique ought to be followed.

In 30 cases Veau did the double operation and in 12 he removed the appendix through the hernial incision. This latter method has inconveniences as the appendix is difficult to reach. Veau has abandoned it except in children above four years old because the appendix is then easily reached and removed.

In many of his cases Veau found adhesions between the appendix and the herniated intestinal loop.

W A BRENNAN

**Murray L M and Morgan J D Diaphragmatic Hernia with Report of a Case of the So Called Acquired Condition** *Lancet* Lond 1917 CCXIII 857

The case reported is of a Canadian private serving in the British army who was completely buried by the caving in of a trench following the explosion of a shell. When he was dug out he complained of severe pain which was referred to the region of the eighth and ninth vertebrae. The diagnosis of hæmothorax was made.

Examination however revealed the following signs and symptoms which led to the diagnosis of diaphragmatic hernia. Sudden exertion caused marked dyspnoea no symptoms were manifested when he was quiet. On percussion of the left lung a dull tympany was elicited the type differing with various examinations. On auscultation of the same lung in front below the third rib a metallic tinkling was heard a sign which first led the examiner to suspect the presence of the stomach in the left chest. The coin test was present. The heart examination revealed a diastolic murmur at the second right costal cartilage. The intensity of the murmur varied with the position of the patient and also varied on different days. A bismuth meal and X ray examination was made at the Canadian hospital and the diaphragmatic hernia confirmed.

In commenting upon the subject the contributors assert that such a hernia may occur either on the right or left side. On the right side it usually consists of a knob of liver tissue. On the left side the contents are nearly always the stomach. Other organs may be carried into this hernial protrusion

such as the intestine pancreas kidney etc. On the other hand lung tissue may make its way downward through the deficiency in the diaphragm.

Diaphragmatic hernia may be either congenital or acquired. Many of the congenital cases may show no symptoms during life until some complications develop such as intestinal obstruction. In the acquired cases a sudden intra abdominal pressure will cause a rupture of the diaphragm. The symptoms complained of in almost all of the reported cases have been dyspnoea pain or some in definite gastric complaint.

In conclusion the important diagnostic symptoms are

1 Displacement of the heart to the right

A metallic tinkling heard high up in the chest having relation to the peristaltic movements of the stomach and not especially corresponding in time to the respiratory movement.

3 Tympany of some degree high up in the left chest

4 Absence over the left chest of the dull note indicating fluid or of the hyper resonant note of pneumothorax.

M A BERNSTEIN

**Moschcowitz A V Epigastric Hernia Without Palpable Swelling** *Int Surg Phila* 1917 LXVI 300

The term hernia has come to mean a protrusion of a peritoneal sac. In epigastric hernia a peritoneal sac is a rarity. In most cases the bulk of the protruding mass is not omentum but a prolongation of the fat enclosed between the two peritoneal layers forming the falciform ligament of the liver.

Epigastric hernia has a distinct symptom complex the patients usually complain of eructations nausea periodic attacks of pain in the epigastrium which do not bear constant relation to ingestion of food as in the case in gastric ulcer yet there is a striking similarity between the symptoms of the two.

Upon physical examination a mass is sometimes palpable in the median line of the abdomen between the umbilicus and the xiphoid appendix. The size when present varies greatly the majority are rarely larger than a marble while many are no larger than a small pea and in the obese either are very difficult to palpate. Irreducibility is characteristic of epigastric hernia.

A constant physical sign is tenderness this is so characteristic that in the very smallest hernia the diagnosis can be made by finding an extremely tender point in the midline of the abdomen.

Moschcowitz reported two cases which he operated upon that had no palpable mass but about two inches above the umbilicus there was a very small opening with a vessel emerging and no other protruding mass ligation of the vessel and closure of the opening resulted in recovery.

F P HAMMOND

Bengolea A J A New Technique for the Radical  
Treatm nt of Umbilical Hernia in the Adult  
(Sol e té hn a p l a r d al  
d l h rn mb l cal l d lt ) R A  
éd g t B l e 97 49

Bengolea's treatment of umbilical hernia in the adult is as follows:

1. Incision of the skin and subcutaneous tissues  
The incision is transverse being modified by a curved or double crescentic cut when it is desired to preserve the umbilical scar.

Isolation of the sac and closure of the hernial orifice. When there is no intestinal or other adhesions in the extraperitoneal operation, preferential, the sac and closing, the hernial sac is separated non-perforation suture. When the orifice is large, the lumen and omphaloblasty adhesions, the sac is excised and the orifice closed transversely by sutures in one plane.

3. Utilization of the anterior sheath of the rectum. An elliptical shaped piece of the anterior rectus sheath is netted in around the hernial orifice varying in size according to the need of the case. The outer edge of this are then freed and turned over so as to help the hernial orifice. The edges are united by continuous suture. The flap of the anterior rectus sheath is then closed. Then the remaining outer edge of the rectus sheath are brought together and sutured. The preperitoneal layer is then further reinforced to the original thickness.

The author has treated the subject fully by this technique. W. A. B.

## GASTRO INTESTINAL TRACT

Mand l M and G b s n W S C n c l M an  
f t a t o n s and T r a t m e n t of G a P o n i n g  
J 1 n M 1 o l o

The authors discuss the symptomatology and treatment of poisoning by the German mustard gas.

The symptoms appear between four and six hours after exposure being ushered in by a tripe and vomiting. Later there is a severe conjunctivitis and a persistent cough that is paroxysmal in character and worse at night. The inspiratory tract suffers from an irritative non febrile inflammation. The exposed parts of the body show burn which in some instances are of the second degree.

Bronchopneumonia: the most common complication and sometimes ends fatally from a superimposed pulmonary oedema not of cardiac origin.

In the treatment the victim should be provided with dry clothing and a fireproof shelter as soon as possible. The gas exposure should be terminated by the removal of the victim from the area. The symptoms result from the action of the decomposition products. In the severe case with pulmonary edema phlebotomy should be performed. There are no special indications in the treatment of the burns or of the conjunctivitis.

Crohn B B and Reiss J Studies in Fractional Digestion of Stomach Contents *A J M*  
5971857

In the following studies the authors have attempted to apply the method of fractional estimation of gastric content to patients suffering from abdominal symptoms and to ascertain to what extent and in what degree pathological processes and abdominal malfunction alter the cycle of digestion, the emptying time of the stomach, the factor of duodenal relaxation etc.

Their tenders are based upon over 200 cases presenting all phases and varieties of abdominal distention. In a large percentage of cases the clinical diagnosis is confirmed by palpation. Through the attempt has been made conscientiously to control only cases in which the symptoms have been eliminated and definitely indicative of pathology.

The technique employed has been to require the patient to fill an Lefebvre tube at 8 a.m. after a 12 hr fast. Drinking has been proscribed since the night before the previous day. Fasting is a coded test the greatest possible degree. The patient is purged in several positions until no further material is obtainable the amount with a 12 hr fast the fasting stomach yields nothing to 140 cc. It is a very happens that nothing is obtained. The fast ng contents were usually clear at a very slightly turbid in appearance. In about one quarter of the cases as present in large amounts and eating a patent pylorus.

The amount of food eaten in this series were as follows: gastric neur 2 to 60 ccm averaging 20 ccm, gastric duodenal ulcer 20 to 140 ccm, ulcer 54 ccm, cases of chronic appendicitis 20 ccm. Marked ulceration or achylia cases were quite empty, the food taken a minimum 10 to 25 ccm, functional hyperacidity 20 to 7 ccm. Children and Pevs were unable at any time to duplicate the large amount of food by Rehfuess and his co-workers in normal males or of Fowler and Zentgraf in normal or approximately normal females.

L ery pec nen wa t t ated for fee and total acid nd th re ft ng amount e pressed in cubic centimeter f decimo mal sod um hydrate per ccm f stom b contents A cur e based on the re ult as then plotted The appearance of bile n the a p ated fr ct on va ca fu lly noted The en pty ng time f the organ wa est mated by the d app an ce of the str ch reaction as d te mmed by the d st on of tincture of odin a e c of e ch tube The presence f mucu as ca full nt l t t e e made for renu a d pep i c s a a d ty nd the Wolff j ha tet pe t mel in ca suspected of carc noma

The pure gastric neurose and the so called normal case showed free acid at the beginning of the test, maximum total acidity was reached at about one hour. The stomach emptied itself fully in

two or two and one half hours. No relationship could be traced between the degree of biliary regurgitation and the fall of acidity toward the end of digestion. The presence of mucus has not been constantly proportionate to the fluctuations of acidity or to the fall of acidity at the end of digestion. In cases free from organic or secretory derangements the height of digestion took place at one hour.

In cases of hyperchlorhydria the total acidity rose rapidly and higher than in normal cases although the emptying took place in the usual time. The hyperacidity ranged between 80 and 110 per cent and often reached 130 and 140 per cent or exceptionally higher.

In cases of hypersecretion the secretion of gastric juice may continue for hours after the normal period of digestion. In cases of anacidity there was a lack of free hydrochloric acid throughout though the total acid may have risen to 20 or 30 per cent at some time of the digestion. Ferment strengths were maintained fasting contents were usually absent or of minimal quantity and the stomach emptied itself within two hours. In the achylia cases free acid was consistently absent throughout total acid fluctuated between 8 and 10 or at most 14 per cent. The emptying time was shortened to one and one half or one and three fourths hours ferments were absent.

The authors believe that ulcer cases are associated with a curve of acidity that rises rapidly and is sustained if not throughout the cycle of digestion at least to within a short time of its end. A steady prolonged rise and sustained plateau are seen consistently in ulcer cases. Acidity if it fall at all does so just before the final emptying of the stomach. A delayed motility was frequently a factor and indicated pyloric involvement. The regurgitation of bile is commonly absent or when present takes place at the very last phase of the digestion. The presence of mucus was not associated with ulcer. Blood was absent throughout. Very little trauma was associated with this method of the test meal and the presence of blood had therefore all the more significance. The highest acidity in the e cases took place in from one and three fourths to three hours after giving the test breakfast. Cholelithiasis and chronic appendicitis curves have not been differentiated by the authors from those of ulcer cases.

In posterior gastro enterostomy cases the curves were characterized by a drop in the acidity which took place at the end of the first hour. This drop was associated with regurgitation of intestinal contents and was followed by a secondary rise of acid. The regurgitation of intestinal contents once begun continued to the end of digestion.

In case of cancer the curves are those of marked subacidity and occasionally of anacidity. The gastric ferments rennin and pepsin were retained in all the cases. Blood was a very common occurrence toward the end of digestion. Mucus was frequently

abundant. The authors were unable to draw diagnostic conclusions from estimates of soluble albumin performed by the Wolff Jughans method.

They conclude that the following information may be gained from the estimation of stomach contents by the utilization of this method: (1) regarding fasting contents the amount presence of food residue presence of regurgitated bile mucus or blood (2) the type of secretory activity as regards free and total acid i.e. the acid curve (3) the duration of secretory activity whether ceasing with the exit of the food or maintained as a hypersecretion thereafter (4) the time of emptying of the stomach i.e. its motility (5) the presence of mucus and time of occurrence (6) the presence of bile as indicative of pyloric relaxation and duodenal regurgitation.

While this method does not give a finished diagnosis it gives a number of facts which when properly interpreted may be recognized and indicated as functional disturbance of the stomach associated with a particular disease. A disadvantage of the method is the time required for its completion.

E. C. ROHRSTADT

**Balfour D. C. Restoration of Gastro Intestinal Continuity by Means of Anticolic Gastrojejunostomy Following Partial Gastrectomy for Cancer of the Pyloric End of the Stomach.**  
*Surg. Gynec. & Obst.* 1917 xxv 473

The resection is carried out in the ordinary manner with especial attention to such important points as the wide removal of gland bearing tissue the avoidance of injury to the middle colic blood supply of the transverse colon the resection made well beyond the cancer limits the cauterization of all cut mucous surfaces to prevent cancer cell transplantation and the secure inversion and burial of the duodenal stump. The operative field is inspected and carefully isolated by fresh packs. The second stage is carried out as follows:

The first loop of jejunum is procured and a point about 14 to 18 inches from the duodenojejunal angle is marked. The jejunum is then carried up in front of the transverse colon and omentum and a segment of suitable size is chosen at the point already marked. This section of jejunum is lightly grasped with rubber covered forceps and directed so that the proximal end of the loop will be approximated to the lesser curvature of the stomach. A series of interrupted silk sutures in the serosa is used for the first line posteriorly beginning at the greater curvature. All these sutures are placed before any are tied and the ends of the top and bottom sutures may be conveniently left as guides.

The first suture line is about half an inch below the clamp on the cut end of the stomach and on the side of the jejunum about three fourths of an inch from the summit of the loop. The jejunum is now incised on the line and the crushing clamp removed from the stomach. Any actively bleeding vessels are ligated. The posterior row of the anastomosis



uniting the posterior wall of the stomach to the inner cut edge of the jejunum is of ch omic catgut. The stitches on the gastric side should be taken after the edge which has been crushed by the clamp has been trimmed with the scissors. A second row of finer catgut may be used to advantage in the posterior line. The first chronic catgut suture continued in front in the usual way to complete the closure. An interrupted silk suture line similar to that used posteriorly is placed anteriorly particularly car being taken to reinforce the angle of anastomosis at the lesser curvature. A few interrupted silk sutures are placed where necessary further to protect the anterior suture line and the suture at the lesser curvature the tump of gastrohepatic omentum which contains the ligated gastric artery being utilized as a support to the gastrojejunal angle at this point.

That the operation is of less risk than other methods is very definitely shown by the operative mortality statistics. From January 1907 to August 16 1911 in 318 resections by Dr. Billroth No. 1 method the operative mortality was 13 per cent in 104 cases by the Polya method a mortality of 14.4 per cent. In 8 cases with the method described the mortality was only 5.2 per cent. This comparison of operative mortality is quite fair as the operation was done by the same surgeons in the same clinic with similar surgical indications. E. R. L. C. R. N. L.

C. I. L. G. The X-ray in Peptic Ulcer. *St J M d* 97 54

By peptic ulcer the author means not only ulcer in the stomach proper but also in the first or second portion of the duodenum. Morphologically the entire thickness of the wall involved either by ulceration or surrounding induration and there may be in addition cicatricial contraction or deformity to adjoining viscera. Gravid deformities such as are produced by advanced lesions are so easily recognizable by the roentgen method that mention is made of them.

Regarding the small round ulcer with the superficial crater in its early stage the author maintains that it should be just as accurately detected and diagnosed as the granuloma. To quote him:

The small early ulcer can be diagnosed through a degree of accuracy by serial roentgenography as a fracture of the long bones can be diagnosed by a plain roentgenogram. He states that the carcinomatous ulcer can be diagnosed just as accurately as the other types.

Diagnoses made on the basis of symptoms and laboratory findings alone can hardly be used to base statistics upon relative to the results of treatment. These should be founded on absolute facts as revealed by the roentgen ray or surgery and ultimate results checked up by re-examination. This method is not used by some surgeons and most gastroenterologists to the extent it deserves to be.

A. OLPH H. RYLAND

D. av. J. B. Pept. Ulcer. *St J M d* 97 59

Peptic ulcer is an ulcer of that portion of the gastrointestinal tract in which gastric juice is normally found. Peptic ulcers may be acute or chronic and either type may be present without giving rise to symptoms but are always a menace since they may give as much trouble as when symptoms are constantly present.

The close parallelism between the gross character of ulcer and the symptoms to which it gives rise is a the symptom in respect to origin fall in four groups: (1) symptoms due to infection (2) symptoms due to disturbed function (3) symptom due to hemorrhage (4) symptoms due to perforation.

Deaver believes in the large majority of cases ulcer due to chronic infection most frequently from the appendix or gall bladder. Because of this he examines the organ like the pancreas and if their appearance is suspicious he removes the appendix and if necessary the gall bladder at operation.

The type of ulcer most frequently observed by the surgeon is the chronic non-perforating and the acute perforating. Of the latter Deaver has had about 20 per cent. The frequency of chronic ulcer has been three in the duodenum to one in the stomach.

For diagnosis he relies on careful history, periodicity of attack with remissions, relief on taking food and the characteristic gas eructations, nausea, vomiting and hæmorrhage. Of the laboratory methods he favors the stomach tube method. He utilizes the test meal and motor meal analysis. He also outlines the stomach by inflation with air and by filling with water.

If it is x-ray findings are of value, negative findings are not reliable.

Disseminating peptic ulcer from appendicitis, appendicitis the sense of comfort even during period of remission from acute pain, the pain is not so severe and adequate downward. There tend to be evidence on deep palpation over the appendix.

Differentiating it from gall stone, the pain in gall stones is colic like sudden in its onset and subsidence.

The pain in chronic pancreatitis has no relation to the food intake.

The time relation of pain to the taking of food is of importance in differentiating stomach and duodenal ulcer.

The operation of choice is excision of the ulcer followed by posterior gastroenterostomy only when the mechanism of the stomach has been left defective by cicatrization.

Posterior gastroenterostomy alone is only of value when the ulcer is situated in the pylorus and causes obstruction and in this case Deaver favors pylorotomy.

It has been his practice in every case of operation

for peptic ulcer to remove the appendix and to examine the gall bladder and remove it if any signs of pathology are presented I E BISHKOW

Finney J M T and Friedenwald J Gastric Polyposis *Am J M S* 1917 chv 683

The author reports two cases of gastric polyposis. The first case presented symptoms of anemia absence of hydrochloric acid in the gastric contents a large filling defect on the greater curvature near the pylorus and blood in the stool and stomach content. A diagnosis was made of gastric carcinoma which proved on operation to be a papilladenoma with malignant degeneration. Excision of this was followed by a continuance of the anemia and melana. A second operation revealed a mass posterior to the duodenum so definitely malignant and adherent that removal was inadvisable.

The second case presented definite findings on test meal and roentgen ray examination of annular pyloric carcinoma with retention. Operation revealed a papillomatous pyloric mass. Excision of this region and posterior gastro enterostomy resulted in recovery.

Chronic gastritis is cited as the chief factor in the production of gastric papilladenomata. Males over forty are predisposed. They usually are pyloric and may be pedunculated or broad based. Their gross and histologic formation depend upon the portion of the glandular area that is rendered hypertrophic or hyperplastic.

The microscopic picture is given in detail.

These polypi are usually benign and may be devoid of symptoms for a long time or may have severe symptoms.

The finding of polypi on lavage the characteristic picture by X ray and the constant presence of free blood in the gastric content combined with achylia gastrica are important diagnostic factors.

V E DUBOVI

Triollet L The Treatment of Gastro Intestinal Hemorrhages of the Newborn (Du traitement des hémoragies gastro-intestinales du nouveau-né) *Arch mens d'obst et de gynéc* Par 1917 v 354

The author makes a subcutaneous injection in the scapular region of 20 ccm of sterilized gelatinous serum. This is renewed each day that hemorrhage occurs. One to two grains of calcium chloride is given each twenty four hours. This quantity is made into a potion of 150 and administered every two hours.

The treatment is continued while the hemorrhage persists but the calcium chloride may be continued one or two days longer. Alimentation is restricted during the crises the thirst only being relieved. The infant is kept warm in a room at constant temperature. Six cases treated at the Tarnier Clinic in this way by the author have given permanent recoveries. Other methods have been abandoned. Sterilization prevents the complications which were formerly observed in the use of gelatinous serum. W A BRENNAN

Saphir J F Quinine and Urea Hydrochloride *A J M J* 1917 cvi 1161

Local anesthesia is desirable in rectal ailments because of the fact that many needed operations would thus be performed that would be deferred if general anesthesia were suggested. This form of anesthesia is indicated particularly in (1) patients suffering from pulmonary nephritic or cardiac diseases (2) patients who are not in good condition because of neglect of a devitalizing operative condition (3) patients to whom time is an important factor because of business or social demands and (4) patients who fear to take a general anesthetic.

Many substances have been used as local anesthetics including cocaine in solutions of varying strength beta eucaine stovaine novocaine alpin chlorotone and even salt solution and sterile water. Each of the above has certain objectionable features the one in common being the peculiar toxicity that is evident when any of these local anesthetics are used in the rectal region. This feature is avoided by the use of quinine and urea hydrochloride. The author gives specific directions as to the preparation of this substance.

The advantages of quinine and urea hydrochloride as a local anesthetic are (1) its non toxicity when given in unlimited doses (2) its prolonged anesthetic effect lasting from three days to two weeks dependent upon the strength of solution used and (3) the fact that a fibrinous exudate out pours in the tissues immediately following injection this exudate serving as a hemostatic agent. This last action lasts from three to ten days which is a very apparent advantage over the transient hemostatic action of adrenalin.

The chief objection advanced against the use of this local anesthetic namely delayed union or sloughing has been occasioned by use of too strong a solution. This is obviated by using 0.125 per cent to 0.5 per cent and no higher. However in certain conditions as in ulcerative hemorrhoids a high per cent solution is desirable because of increased hemostatic action.

The author recommends a syringe of his own device for this type of anesthesia. He advises against elaborate local preparation or previous catharsis maintaining that much of the postoperative pain following operative procedures in this region results from purging and from too violent sphincter dilatation or rough drainage.

He warns against the use of local anesthesia unless the operator has accurate knowledge of what is to be done.

For thrombotic hemorrhoids injection of the clot bearing area and complete excision can be accomplished without inconvenience to the patient.

External hemorrhoids are treated in a similar manner no suture being necessary.

This anesthetic can be used in correcting internal hemorrhoids a 0.5 per cent solution being used and the tissues thoroughly injected before

being handled. By this means dilatation of the sphincter can be avoided and the patient need not be confined to bed. It also unnecessitates the use of morphine as the bowels are permitted to move the following day.

The author cautions against ligating several hemorrhoids in the same plane because of danger of structure and condemns the use of anal plugs in the form of gauze drain. He does not favor the use of the clamp and cauterization of the Whitehead operation.

For relief of fissure, an incision is proposed to divide or stretching of the sphincter. He advises the use of a local anesthetic of 10 to 35 per cent solution of quinine urea hydrochloride and division of the sphincter.

He summarizes the advantages of quinine urea as follows: (1) the lack of pain at time of operation; (2) the duration of three to ten days following operation; (3) the lack of toxic effects; (4) its hemostatic action; (5) its solubility in water; (6) the fact that a weak solution can be used to promote moderate fibrinous exudate for hemostasis; and that (7) stronger solutions can be utilized in areas where sloughing is the desired result.

V E D M S

Fontaine L. A Method of Gastrostomy (Urological Digest, 1917, 1918)

Fontaine's method of gastrostomy comprises: 1. A median supra-umbilical laparotomy for exploration of the stomach.

2. Fixation and opening of the stomach wall bringing it to the outside by forceps through the abdominal wall in the neighborhood of the rectus muscle.

The supra-umbilical incision permits approach to the best point in the stomach wall nearest to the cardia and furthest from a neoplasm if such exist and no harmful dragging is necessary. It also sustains the abdominal wall while the forceps traverse the rectus and perforates the peritoneum. It protects the viscera against any wound which the forceps might cause when it penetrates the abdominal cavity.

A small incision is made in the abdominal wall in the vicinity of the rectus on the left side at a point corresponding to that point of the stomach which is to be seized. The anterior sheath of the rectus is split by the bistoury. Through this orifice a Trier or a Delagenere forcep is passed closed and pushed through the muscle with the aid of the finger and then into the peritoneum. The forceps is then opened and the stomach wall is seized in its entire thickness. It is slowly drawn to the exterior through the abdominal wall orifice.

Four stitches fix the gastric muscular serosa to the musculo-aponeurotic wall of the abdomen, then with the gastric cavity opened four more stitches fix the whole thickness of the stomach wall including the mucosa to the skin. The abdominal incision is then closed.

As the fibers of the rectus muscle have neither been dissected nor divided but only separated at a limited point they help in rendering the opening in the stomach patent. Because the abdominal wall has not been divided in the vicinity of the new orifice it need not be closed by suture and the chance of disunion is avoided.

The author used this method in a child of three and one half years following the swallowing of some acid two months before. The opening remained patent. W A BRENNAN

Carter H S. The Medical Aspect of Gastro-Enterostomy. 1st J M S. 97 cl. 85

In the discussion of gastro-enterostomy its relation to chronic gastric or duodenal ulcer alone is undecipherable.

The author believes that the cases are medical before they are surgical because they should all be given the benefit of a thorough painstaking medical cure or even two medical cures before surgery is considered. The reason for this insistence is because a fair proportion of cases do get permanently well on this plan of treatment and are spared the operative risks as Carter attempts to show statistically.

The indication for operation provided that medical cure has failed or is inadvisable are: (1) chronicity of the symptoms in spite of medical treatment; (2) repeated hemorrhage or very severe hemorrhage; (3) pyloric stenosis.

The result of gastro-enterostomy on the symptoms as far as the immediate effect is concerned is usually a happy one after the postoperative discomfort is over. The change in secretions following the operation is often insignificant and in general the author claims it may be said that the acid alacidity in by gastric analysis are all somewhat lower but the case that was hyperacid before operation is apt to remain so following operation although the acidity is less. The cases with normal preoperative acidity are seen to have the acidity more or less reduced but often how little change while others completely how an achylia. Certain cases remain with hypersecretion while in others it occurs for the first time following operation.

Operation on the stomach with a normal result on motility often results in stasis or hypersecretion or both and operative treatment on a stomach with delayed motility and hypersecretion usually brings motility to normal and lowers acidity. The modification of the symptoms and secretion Carter believes undoubtedly do to: (1) the relief of pyloric spasm which follows the operation; (2) the inflow of alkaline jejunal contents; (3) lessened emptying time of the stomach provided the pylorus has not been occluded. In generally weak patients the result is atony and delayed emptying. If vigor is promptly restored and the pylorus is patent gastric motility is better and the emptying time shorter than normal. The character of the stools is apt to be unduly copious in comparison.

with the meals eaten and this is probably due to poor fat absorption

The remote result of gastro enterostomy in regard to the symptoms is the permanent relief of these provided no complication exists and the ulcer heals. The secretions gradually become normal showing lower acid values than before or immediately following operation. The late results in motility are the same as the early results when there is no atony

► When one looks at the surgical statistics regarding the end results of gastro enterostomy it will be seen that in comparison with the medical result the percentage of cures is higher apparently increasingly so as the cases are properly selected the operation performed by a competent surgeon and the patient judiciously cared for and fed after the operation. Up to the present time most surgeons have been extremely careless in the matter of diet. After operation the ulcer is still present and potent for evil it is also possible to produce an ulcer on the jejunal wall opposite the new stoma by constant trauma of rough food plus a hyperacid gastric juice.

All cases of gastro enterostomy should be given a regular ulcer diet giving the old ulcer the most favorable opportunity to heal and preventing food irritation elsewhere.

E. C. ROBITSHEK

#### Mayo C. H. Jejunostomy Its Indications and Methods *J. Laicet* 1917 xxxvii 793

The author advises jejunostomy for the relief of obstruction and for purposes of nutrition. In the first group are cases of obstruction following operation and cases of acute obstruction from some unknown cause. In the second group are those cases of widespread cancer of the stomach obstructing the cardia and leaving little room for gastrostomy cases of extensive laceration of a cancer of the stomach made accidentally during exploration and extreme cases of nervous vomiting of girls from eighteen to twenty five years of age.

The operation for purposes of nutrition is performed through a midline or left lateral incision for the relief of obstruction it is best to re open the former incision unless it is infected. In cases of obstruction the operation should be performed as soon as the evening of the third day or on the fourth day. If there is no general peritonitis and the obstructive condition is recognized early the operator may explore the region of the primary operation separating bands of adhesions or kinks and relieving the obstruction.

If jejunostomy is considered necessary a No 10 English catheter is inserted a few inches into the lumen of the selected gut and is fixed to the bowel by a purse string suture of chromic catgut or silk. The catheter is then depressed into the wall of the bowel which is sutured over it for an inch and a half. It is passed through a perforation in the omentum and brought out through the incision sutures being passed through the peritoneum the omentum and the intestine on each side of the tube to hold it in position.

JOHN W. TURNER

#### Ruggles H. E. Right Sided Position of the Stomach in Inflammatory Conditions in the Ileocecal Region *Am J Roentgenol* 1917 iv 577

The author's attention having been called to the right sided position of the stomach in a case of extensive adhesions involving the ascending colon and omentum he subsequently noted a similar displacement in several cases where operation failed to discover sufficient evidence to account for it. In a series of 24 cases 12 of which were operated upon and found to have adhesions or disease in the ileocecal region 6 had their incisura anularis shifted well over to the right side. In the other 12 cases 6 of them individuals in whom operation revealed no ileocecal adhesions and the others being free from clinical and roentgenological evidence of appendiceal disease the incisura was to the left of the median line.

In view of the findings the author believes that where right sided displacement of the stomach is noted the ileocecal region should be subjected to an unusually thorough examination for other evidence of pathology.

ADOLPH HARTUNG

#### Beekman T. Smith M. K. and Everingham S. Acute Appendicitis an Analysis of 500 Cases *Am J W Sc* 1917 cliv 490

The authors base their paper on a study of the cases of acute appendicitis admitted to Bellevue Hospital during the years 1911 to 1916 on the services of different surgeons.

It was their experience that if the gross appearance of the appendix was not evidently that of acute disease there was seldom other sufficient evidence to so regard it. They quote Moschowitz's statement that in 90 per cent of the cases the diagnosis of a present or previous appendicitis may be easily recognized by the naked eye. They report a mortality of 6.8 per cent. The mortality is reduced to only 1 per cent if operation is done within the first twenty four hours. By the end of the second day the mortality is quadrupled and by the end of the third day the mortality is far above the general average.

The lesson to be drawn from this is that in the presence of virulent infections and low resistance a delay of seventy two hours seriously compromises the hope of recovery. Operations done later than twenty four hours after the onset of symptoms can not be considered early. They found that twice as many died who were operated upon the third day after the onset of symptoms as on any other day of the illness. Another factor influencing the mortality is the age of the patient the very young and the elderly often succumb. In their series the mortality of those under ten years and over fifty 1-23 per cent as opposed to a mortality of 4.7 per cent for those between.

They believe the mortality figure may be greatly improved by making an early diagnosis followed by immediate operation. Death was ascribed to intra

abdominal suppuration in 82 per cent of their 34 fatal cases of which 62 per cent was due to diffuse peritonitis. A temperature over 104 is usually indicative of diffuse peritonitis. Abscesses were found in 21 per cent. Pericolic fistula and postoperative pneumonia were the most common sequelae. The former in 5 per cent the latter in 25 per cent of the cases.

In conclusion they emphasize the fact that operation should be performed as soon as the diagnosis is made because the shorter the period between the onset of the disease and surgical interference the better the prognosis. The death rate being lower few complications and sequelae developing and the stay in the hospital shortened.

G. W. HERRL

Rouchier Appendicitis in the War (April 1918)  
 à la guerre. *Bull. Mém. Soc. de Chir. de Paris* 9  
 1846

Rouchier finds that appendicitis is more frequent in the army than in civil life. This is probably due to fatigue and exposure to wet and cold which render a latent infection acute by lowering the resistance or it may even give origin to primary acute appendicitis. The cases are particularly severe but it happens that men who are used to hard hips endure these crises often without seeking aid and such cases arrive at hospital with fully established diffuse peritonitis and perforated appendix.

Rouchier thinks that when the diagnosis of appendicitis is made the patient should at once be sent to a surgical center where he can be operated upon if necessary. The operation should be carried out at the surgical post within at least thirty hours and if this interval is exceeded Rouchier thinks that operation should be delayed until after the acute attack.

When the diagnosis is made early the patient can generally be transported so as to arrive at the surgical station in sufficient time to benefit by an early operation.

The important points therefore are early diagnosis and immediate transport even in cases where there are only suspicious symptoms. W. A. BRENNAN

Baird R. W. and Kindley G. C. Hirschsprung Disease. Report of a Case. *South M. J.* 1917, 846

The patient was a girl six years of age with a negative family and previous medical history. The illness began with pain in the abdomen followed by diarrhoea about two and one half years before she was seen. These attacks occurred every two or three weeks for about one year. The appetite was fairly good but as the disease progressed there was nausea in the morning. She slept well at night but was drowsy during the day. Diarrhoea alternated with constipation. The urine was scanty.

At physical examination the patient though very pale showed no emaciation. Her face was cedema-

tous and the skin rough and dry. There was cyanosis of the back of the forearms and over the rest of the body. The tongue was badly coated with tonsil large and cryptic and there was a soft systolic murmur at the base of the heart with some cardiac dilatation. The spleen was not palpable and there was no glandular enlargement. The abdomen was distended and tympanic. A mass the size of a small orange was palpable at the umbilical area while a larger mass extended from the right hypochondrium down to the pelvis and then upward to the left hypochondrium.

Blood count showed 1,315,000 reds, 8,600 whites, haemoglobin 60 per cent, polymorphonuclear 68 per cent, color index 0.4 per cent with one normoblast, slight poikilocytosis, marked anisocytosis and megalochromatophilia. The stool contained occult blood otherwise it was negative.

Examination following a banana meal confirmed the diagnosis of megacolon. The patient died the third day after admission. No necropsy was permitted. CARL P. TEINER

Mayo W. J. A Study of the Rectosigmoid. *S. G. Obs.* 97, 66

The rectosigmoid is the narrowest part of the large intestine. It consists of 3 inches of the intestinal tract and includes the terminal 2 inches of the sigmoid and the proximal 1 inch of the rectum. It has a definite mechanism for the purpose of retarding the faecal current and preventing continuous progress of the intestinal contents into the rectum. The rectum proper begins at the middle of the third sacral vertebra and anatomically speaking ends at the level of the apex of the prostate in the male and at the upper level of the perineal body in the female. Sites which mark the beginning of the so-called second portion of the rectum or more correctly the anal canal.

The anal canal has its origin in the proctodæum or skin infold. It is lined with pavement epithelium. It has no mucous glands and is in no way a part of the ectoderm but is rather a retentive mechanism extraordinarily well adapted to temporary fecal retention. The anal canal is about 3 cm in length and passes upward and forward at such an angle in relation to the musculature of the rectum as to relieve the strain on the sphincter muscle.

The rectum is a single organ about 45 cm in length with a protective sigmoid mechanism above and the sphincter apparatus of the anal canal below.

This interrelation of the anatomy of the rectum is in harmony with its embryologic origin. The rectum proper is derived from the cloaca, a highly differentiated part of the hindgut from which also the bladder is derived. Definite anatomic changes are to be found in the epithelial layers of the mucous membrane at the rectosigmoid juncture and possibly a tissue weakness worthy of note.

The more or less circular folds of the mucous membrane of the sigmoid in this terminal portion

take on a longitudinal arrangement with much the appearance of the columns of Morgagni and the rectal sinuses and end in a rudimentary sphincter apparatus at the very beginning of the rectum. This hint of a sigmoid sphincter at the rectosigmoid union forms a well marked resisting constriction to the readily dilatable sigmoid above and the rectum below.

This circular band at the termination of the sigmoid contains considerable non striated muscle fiber and was found in eighty per cent of 46 cases and in 2 of the 46 it amounted to a definite narrowing which reduced the caliber to a considerable extent.

The impression is gained that ordinarily the rectosigmoid is an arrangement for retention of contents in the sigmoid proper and that under certain circumstances the controlling mechanism may subject the parts to undue stress.

The terminal sigmoid is held by its mesentery, has considerable play and curves from its rectal attachment. The longitudinal muscle bands are well developed and by spreading out grasp the entire rectum. It is probable that contraction of these bands from the fixed point of the rectum under proper stimulation enables the sigmoid to straighten and pour its contents into the rectum while under ordinary circumstances the angulation is co effective in retention. Investigation shows that the emptying of the large intestine from the splenic flexure is accomplished largely by syphonage. The hardened head of the fecal current rests at the rectosigmoid and the syphon is established when this mass which can be compared to the piston of a syringe moves onward.

The difficulty of guiding tubes and instruments from the rectum into the sigmoid is due to the recto sigmoid mechanism and ordinarily it is futile to use the so called colonic tube the passage of which out of sight into the rectum where it remains coiled leads to the supposition that it has passed into the sigmoid. Single or several polypi which are so frequently found in the ampulla of the rectum and which on straining are grasped in the sphincter apparatus and rendered pedunculated have their counterpart in the single or at most two or three polypi which are so often found in the terminal sigmoid and which for the same reasons have become pedunculated into the rectum. Hirschsprung's disease or giant colon as a rule has its origin in the rectosigmoid mechanism. Diverticulitis and other infections are frequent in this locality.

With the exception of the pyloric end of the stomach carcinoma is to be found more frequently in this 3 inches than in any corresponding part of the gastro intestinal tract. In an investigation of the last 100 specimens of cancer of the rectum and rectosigmoid removed consecutively at St. Mary's Hospital Rochester Minnesota it was found that 28 were located in the rectosigmoid juncture extending as much on the rectal as on the sigmoid side. 1 involved the juncture but extended more

on the rectal than on the sigmoid side. 14 involved the juncture but extended more on the sigmoid than on the rectal side. Thus 63 per cent involved the rectosigmoid, 30 per cent the rectum only and 7 per cent the anal canal.

#### Pennington J. R. Anal and Rectal Fistula. *J Am M Ass* 1917 LXX 1501

The author emphasizes the importance of considering the sinuses and diverticula of the lower bowel as prominent etiological factors from an embryological standpoint in the causation of fistulae and abscesses. He also cites traumatic causes and pathological conditions favoring the invasion of pathogenic bacteria which is the essential exciting factor.

The development of fistulae resolves itself into (1) the pre-fistula stage (2) the stage of infection (3) the abscess stage and (4) the fistula stage.

The position of the internal fistular opening is the point of chief prognostic import. Accurate determination of the cause of the tract is often difficult though this may be solved by use of the roentgen ray.

Careful rectal hygiene is advocated as prophylactic treatment. Conservative drainage in the abscess stage and injection with bismuth subnitrate ointment is advanced as an abortive measure. This treatment is effective also in some cases after having reached the fistula stage.

He recommends in particular that in the operative treatment of fistulae the entire tract including the surrounding pyogenic membrane be dissected out thoroughly and having been assured of entire cessation of hemorrhage that the wound be entirely closed by suture using catgut for the mucous membrane and sphincter and silkworm gut for skin and fascia.

V. L. DUDMAN

#### Bray H. A. The Pathology Diagnosis and Treatment of Internal Hemorrhoids. *N Y M J* 1917 CXL 1118

Internal hemorrhoids are varicosities of the middle and superior hemorrhoidal veins sometimes associated with eversion of the rectal mucous membrane. Allingham describes three varieties of internal hemorrhoids capillary arterial and venous which the author considers the first second and third stages respectively of hemorrhoidal development. The venous type consisting of a mass of large dilated veins beneath the mucous membrane which has become thickened by repeated irritation producing a large bluish tumor which protrudes during defecation.

The diagnosis of internal hemorrhoids is apt to be confounded with cancer of the rectum polypus and prolapse of the rectum. The difficulty arises in the early stage of hemorrhoidal development when there is no external evidence of internal piles and bleeding is the only symptom. The diagnosis is also more difficult when hemorrhoids are complicat

## LIVER PANCREAS AND SPLEEN

ed by a fissure or ulcer of the rectum. An examination in a case of internal hemorrhoids should never terminate at the evidence of hemorrhoidal tumors for it often happens that the hemorrhoids up a stricture exists which manifests no other signs of its presence except the hemorrhoids.

The treatment of internal hemorrhoids is generally considered under two heads, namely, palliative measures and radical cure by operation. Permanent cures cannot be effected with palliative measures in the third stage of hemorrhoidal development. Internal hemorrhoids secondary to stricture of the urethra, enlarged prostate, vesical calculus, pregnancy, or neoplasm will completely disappear when these affections are cured. Constipation, the most common cause of internal hemorrhoids, should be treated by regulation of the diet, injection of oil, or in obstinate cases saline cathartics are indicated.

Hæmorrhage is most efficiently relieved by the use of astringents and cold. Hæmorrhage from a spurting vessel can be stopped by a ligature.

The injection of a moderately strong solution of carbolic acid into the center of the pile results in a hardening and diminution in the size of the hemorrhoid. The author uses a solution consisting of one part pure carbolic acid to two parts of glycerine and two parts of water, injecting 5 to 10 drops into a hemorrhoid.

Strangulated piles if an operation is refused should be treated by local application of cold water and laudanum lotion applied ice cold, which often reduces the swelling so that reduction by taxis may be accomplished.

Of the operative methods for radical cure of internal hemorrhoid the author prefers the ligature or Salmons operation. After the ligature has been tied he does not cut off the pile unless it is very large but replaces it within the bowel. He also inserts into the rectum a firm piece of rubber tubing 3 inches long and 1 inch in diameter around which sterile absorbent cotton is applied. The tube serves to allow the escape of flatus, the possible detection of bleeding, and the passage of a catheter for the giving of enemata when necessary.

The clamp and cautery operation has an enviable reputation and the author prefers it next to the ligature operation.

From the author's experience in the treatment of internal hemorrhoids he has arrived at the following conclusions:

1. In the treatment it is important to determine whether the disease is primary or secondary to some affection of the pelvic organs.

2. In the first stage of hemorrhoidal disease no treatment is indicated.

3. The true value of non-operative treatment is frequently underestimated in the second stage of hemorrhoidal disease.

4. None but operative treatment should be resorted to in the third stage of hemorrhoidal disease.

V. C. H. T.

Manzone C. Carcinoma of the Gall Bladder  
(S. b. un. c. so. de. a. c. om. d. la. es. cul. bilar)  
S. ma. ed. B. e. os. A. re. 9. 7. x. v. 4. 8.

Manzone's patient was a woman of 63 years who was diagnosed and treated for cholelithiasis. Laparotomy showed a tumor involving the neck of the gall bladder and the first part of the cystic duct. The bladder, duct, tumor and liver formed a conglomerate mass which had lost all anatomic relations. On incising the gall bladder a large sacculated calculus was found and easily extracted. There were no signs of superficial ulceration.

Owing to the conditions a radical operation could not be performed. No intervention was confined to cholecystostomy. The biliary colic ceased after operation but the general state did not improve.

Although there was no histological confirmation yet by reason of the lesions observed during operation and of the progress of the case after operation the author believes this was a case of primary carcinoma of the gall bladder associated with lithiasis and lithiasis preceded the neoplasm.

W. A. BRENNAN

Duerming H. A. Cholecystectomy Versus Cholecystotomy  
I. cy. t. om. y. J. I. d. St. M. I. 19. 7. x. 4. 6.

The author reports 6 cases of cholecystotomies and 42 cases of cholecystectomies. In this group there were deaths one each from pulmonary embolism, cholecystitis, Charcot's fever, cholangitis, cholelithiasis, and of fatal sepsis due to gangrene.

Gall stone has been removed for the past three hundred years in the following ways:

1. The Charcot method by which preparations were spread on the gall bladder region until firm adhesions were formed between the parietal peritoneum and the gall bladder.

2. The attachment of the gall bladder to the parietal peritoneum by suture.

3. Cystostomy, opening the gall bladder suturing and returning it to the abdominal cavity. Many of the cases developed peritonitis.

4. Proportions of tube drainage.

5. Removal of the gall bladder.

6. Cholelithotomy, and the use of the T tube for drainage.

The author says that stones can be diagnosed positively only when stones have been found in the feces or have been vomited. Stones do not constitute the disease of the gall bladder but are the result. The removal of a stone will not cure the disease unless something is done to remove the cause.

The following are the indications for cholecystectomy: (1) phlegmonous cholecystitis, (2) empyema of the gall bladder, (3) chronic cholecystitis with shrunken and thickened gall bladder wall, (4) hydrops, (5) tense injury of the gall bladder, (6) carcinoma of the gall bladder.

Mayo says that cholecystotomy and the removal of stones will cure symptoms of mechanical obstruction but will not cure chronic cholecystitis and cannot restore the destroyed wall of the gall bladder in freeing it from adhesions.

The contra indications to cholecystectomies are (1) inability to get a clear field for operation especially in the very obese (2) stenosis of the common duct (3) pancreatic disease.

The author in doing a cholecystectomy gets a clear field, starts his dissection from the fundus of the gall bladder, ligates the cystic artery separately and provides drainage. C. A. BOWERS

#### Willis A. M. Cholecystectomy Without Drainage *J. Am. Med. Ass.* 1917 LXXI 943

The author gives the results in 549 gall bladder operations and describes the technique followed by him in cholecystectomy.

A right rectus incision, curving toward the xiphoid at the upper end is used. An incision is made into the hepatoduodenal ligament and the pelvis of the gall bladder is grasped and pulled upward while a right angle clamp seizes the cystic duct and artery. The author believes that this method of securing the duct and artery absolutely obviates the danger of injuring the common duct in the procedure. A ligature is then put around the cystic duct close up to its junction with the common duct and a second ligature is placed around the cystic duct and artery and the two are cut. The gall bladder being dissected out from below upward. The stump of the cystic duct is secured in the ligament by means of a crown suture passing through both layers of peritoneum and around the stump. The raw surface is covered with peritoneum and the abdomen closed without drainage.

In the author's series of 549 operations there were 398 cholecystostomies with a mortality of 17 per cent, 107 cholecystectomies with a mortality of 0.9 per cent, and 44 choledochotomies with a mortality of 9.0 per cent. There were 26 secondary operations, 21 following cholecystostomy and five following choledochotomy. The death occurring in the cholecystectomy group was in the case of a woman aged 66 with a simple case of cholelithiasis. The gall bladder was ruptured during removal and the abdomen was closed without drainage. The patient suffered urinary suppression and died three days after operation. At necropsy a small abscess was found between the liver and transverse colon and an acute nephritis was revealed.

JOHN W. TURNER

#### Vincent W. G. Malignancy of the Biliary Apparatus *Med. Rec.* 1917 LXXI 933

From October 1914 to March 1917 about 22,000 patients have been admitted to the New York Postgraduate Hospital. During this same period there have been 15 cases in which malignant tumor of the liver was such an outstanding feature

of the pathologic condition as to be made the principal diagnostic heading on the discharge card and the same applies to 10 cases of malignancy of the gall bladder and one case of carcinoma of the papilla of Vater.

Primary carcinoma of the liver is rare. It may occur at any age but it is comparatively rarely seen before the age of forty. Castle finds that 42 cases of primary carcinoma of the liver in individuals up to the age of sixteen have been reported. While carcinoma of the gall bladder occurs more frequently in women than in men, the opposite condition obtains as regards primary cancer of the liver. The secondary involvement is much more common in women than in men.

Primary carcinoma of the liver may be single or multiple and usually originates in the region of the gall bladder, the hilus of the liver or the bile ducts rarely from the parenchyma cells. Many hold that cirrhosis or syphilitic cicatrization is the primary affection and carcinoma development secondary.

The description of the three forms of primary carcinomatosis of the liver as outlined by Zeigler follows:

The symptoms depend largely upon the site and histologic character of the growth and degree of involvement of the surrounding structures.

Early diagnosis cannot be positively made without exploratory laparotomy. The prognosis is very bad and as for treatment, early radical operation offers the only opportunity and in a few instances this has been obtained.

Primary sarcoma of the liver is very rare but many metastatic cases have been reported. The symptoms are similar to those of hepatic carcinoma. The treatment is hopeless. Carcinoma of the gall bladder is much more common than carcinoma of the liver. The primary etiological factor is gall stones. The growth takes the form of a papillary or fungous tumor or a cancerous ulcer.

Primary carcinoma of the gall bladder is extremely rare. Symptoms are very similar to those of carcinoma of the liver but there is in addition usually a history of gall stones. Unless the condition is recognized very early, operation offers practically no cure.

Primary carcinoma of the bile ducts differs from carcinoma of the gall bladder in a number of particulars. First it is more frequent in men than in women, second usually the first symptom that calls attention to the biliary apparatus is jaundice. Most of the cases occur in the common duct or at its junction with the cystic and hepatic ducts. The growth is of the annular type or occurs as a papillary outgrowth into the lumen. The symptoms are jaundice which generally begins insidiously and gradually increases in intensity and which once established is permanent, cachexia and rapid loss of strength, pain in the epigastric or gall bladder region usually of dull aching character but occasionally colic like when the gall bladder



attempts to empty itself and enlargement of the gall bladder

The principal condition from which carcinoma of the ducts must be differentiated is stone in the common duct. In this latter condition the jaundice usually occurs suddenly, is always intermittent and the entrance of bile into the intestine is never permanently blocked.

With carcinoma on the contrary, once the passage of bile is blocked, acholia is permanent unless connect on with the gastro intestinal tract is restored by operative means. The pain in calculous obstruction is sudden and severe and apt to radiate, while that of malignant disease is usually dull, dragging and persistent. Cachexia and rapid loss of strength would also point to malignant rather than to calculous disease. The treatment is the prophylactic early removal of gall stones.

Carcinoma of the papilla of Vater is a rare condition. The symptoms are those of interference with the flow of pancreatic fluid and the bile together with symptom of obstruction in the duodenum. The treatment is by excision if possible together with provision for the establishment of the flow of bile into the gastro intestinal tract. In most cases gastro enterostomy is also required.

E. C. ROBERTS

Grey, E. G. The Effect of Duodenal Juice from the Pancreas upon the Gastric Acid and upon the Pancreas. *J. Exp. Med.* 97: 85.

Recent work has shown the important part played by the alkaline duodenal contents, the pancreatic juice in particular in the maintenance of a uniform level of gastric acidity. The author also comments on the fact that it has been demonstrated experimentally that a regurgitation of duodenal juices after the ingestion of certain food stuffs is of such regular occurrence that the process has been regarded as an accompaniment of normal gastric digestion and furthermore that neutral alkaline or feebly acid fluid provoke a secretion of acid juice in order that the gastric acidity may be brought to the normal level. There is but little evidence, however, to show how the level of gastric acidity is affected when alkaline solutions are introduced into the stomach more or less continuously throughout the period of digestion.

The present report is based upon the results obtained from experiments carried out on seven dogs. Inasmuch as the principal purpose of the investigation was to follow the change in the acidity level of the stomach it seemed best to the author to analyze specimen of the test meals instead of studying the pure gastric juice which as the method employed in previous experiments. For this purpose the gastric fistula as devised by Janeway proved to be very satisfactory to the author. All the animals were anesthetized with ether.

A small three sided piece of stomach wall was turned down toward the greater curvature. This constituted a rectangular flap with its blood supply intact. By sewing the lateral margins together and closing the opening in the gastric wall a small tube was formed which was lined throughout by mucous membrane. The distal end was then sewed into the abdominal wall, care being taken to anchor it to the peritoneum, fascia and skin. The mucosa and skin of course were sutured together.

In experimenting with the reconstruction a very important feature was noted. During the first week subsequent to the operation there was a marked retraction of the new tube toward the peritoneal cavity with a definite contraction of the external opening. The effects of these changes, however, could be greatly minimized if care was exercised during the operative procedure to attach the tube in the abdominal prieties so that it protruded five or six centimeters above the level of the skin which could be done without embarrassing the blood supply.

Infection of one of the fistulae three or four months subsequent to its construction showed a lead pencil like tube 4 or 5 cm. in length extending through the peritoneal cavity from the abdominal wall to the stomach which the author found to interfere but little with the normal gastric movements.

A standard mixture of 50 gm. of ground raw beef and 5 ccm. of tap water was used as a test meal. Each dog received the same diet each day. Water was withheld until the test meal had been given but throughout the balance of the day the animals were permitted to take as much water as they desired. Samples were withdrawn for analysis at intervals of three hours after the ingestion of the meal.

The experiments reported in this paper, Grey states were arranged out for the purpose of ascertaining how the stomach would react as far as the secretion of hydrochloric acid is concerned to a more or less constant influx of relatively strong alkaline fluid prolonged throughout the cycle of digestion. Numerous studies have shown that anserous nerve interference with the process of regurgitation lead to a rise in the acidity level of the stomach, i.e. to a state of hyperacidity, but there is little evidence to indicate whether the acidity level will be depressed temporarily or permanently when alkaline material in considerable amounts continues to enter the stomach.

The influx of alkaline fluid as provided for by the anastomosis of the larger pancreatic duct into the wall of the stomach after ligation and dividing the lesser duct specimen of test meals for analysis were withdrawn through gastric fistulae made after the method of Janeway.

Animal experiments in this manner were also to furnish additional information regarding the possible relation of the hydrochloric acid of the gastric juice

to certain acute inflammatory and chronic sclerotic changes in the pancreas

From the results of his experiments it appeared to the author that the presence of a considerable amount of pancreatic juice in the stomach throughout the period of digestion led only to a moderate decrease in the acidity level of the ingesta in the later stages of digestion. Earlier in the process there was no constant alteration of the acidity level in either direction. The findings served not only to corroborate the views of Boldyreff but also to demonstrate the remarkable compensatory activity of the gastric glands under conditions which entailed an unusual quantity of alkali in the stomach.

In addition the author's work has shown that when the larger pancreatic duct was properly transplanted into the wall of the stomach it might remain patent for months. In animals in which this operative procedure was carried out the pancreas was found to undergo no inflammatory or other degenerative changes. This finding he regards as evidence against the postulate of Hlava that gastric juice is probably responsible for the occurrence of certain cases of acute hemorrhagic pancreatitis.

GEORGE E. BEILBY

**Maurizi M. Acute Pancreatitis** (Le pancreatit acute) *Ga d osp ed clin Milano* 1917 x viii 1091

Maurizi thinks that acute pancreatitis is more frequent than is believed. Its differential diagnosis from acute peritonitis, intestinal occlusion, acute appendicitis and cholecystitis is very difficult. In such cases urgent intervention is indicated and the operator in addition to finding the pancreas swollen and marbled will find round spots the size of a two centesimi piece disseminated in the omentum in the mesentery and in the parietal peritoneum. These spots are characteristic of acute pancreatitis and are due to a true intracellular digestion of fat.

W. A. BRENNAN

**Goto K. The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice, the Influence of Splenectomy and of Blood Disintegration upon the Production of Bile Pigment** *J Exp Med* 191, xx 175

The elimination of bile pigment and the changes following the administration of a hemolytic agent were studied both before and after splenectomy in dogs with a bile duct ureter anastomosis at the same time studied were made of the red cell and hemoglobin content of the blood.

Four dogs of approximately the same size were used. They were fed on a standard diet containing 0.4 gm of nitrogen per kilo and 70 calories per kilo of body weight. The diet consisted of beef heart lard bread crumbs sugar a little salt and some bone ash. The daily intake of water was always the same.

The importance of keeping the test animals on a constant diet for bile pigment determination is obvious from the observations of Hooper and Whipple who have shown that carbohydrates tend to increase considerably the secretion of bile pigment in dogs with bile fistula and also that on a strict meat diet the bile pigment curve is at its lowest level.

Instead of the usual external bile fistula the bile duct ureter fistula of Pearce and Eisenbrey was employed. The method consisted in diverting the bile from the intestine to the urinary bladder by anastomosing the common bile duct and the right ureter after removal of the corresponding kidney. It had several advantages for long continued observations and avoided some of the troubles of the external fistula such as obstruction infection and losses due to accident in collecting. The mixture of urine and bile in the absence of jaundice offered no difficulties for the quantitative determination of bile pigments.

Several days after this operation a preliminary blood examination was made and if anemia was absent and there was no evidence of obstruction of flow of bile to the bladder the urine was collected from the cage every morning for one week and the several lots were combined for quantitative estimation of bile pigment. The animals were not catheterized the urine being collected daily and preserved in cold storage until the quantitative determination of bile pigment was made.

The general outcome of these experiments is shown by the author in a series of four tables and from these he summarizes the obtained results as follows:

In four animals with a bile duct ureter anastomosis and without disturbance due to obstruction or absorption the total quantity of bile pigment output during a day under normal conditions varied from 0.0618 to 0.0678 gm. These figures were practically identical with those of Stadelman but lower than those given by Hooper and Whipple who found that the average bile pigment excretion amounted to about 1 mg per pound of body weight per 6 hours.

In all the experiments there was definite evidence of a decrease in bile pigment elimination after splenectomy. This was true not only of the elimination when no hemolytic agent was administered but also when excessive blood destruction was caused. Under the latter circumstances the amount of bile pigment was greatly increased but never reached the high level of blood destruction before splenectomy.

These observations appeared to the author to show conclusively that the absence of the spleen influenced the formation of bile pigment. To what extent the influence was mechanical, i.e. the change in the course of the blood to the liver and to what extent due to anemia the author is unable to say from the present experiment.

GEORGE E. BEILBY

## MISCELLANEOUS

Bea 1 W M The R lation of Hæmor 1 idal D  
se to the He lth B l nc T 1m P d l  
S Ne Y k 97 J

The author discusses the rel t onship of hæmor rhoidal d ase to the health balance as marked by the following factor

1 Th del ter o s effect upon the patient s mind by incre sng his r tability and m kng him an ous nd moro e

2 The many reflexes coincident with ulcerated large or small types of hæmorrhoids

3 The influence upon the so called vegetat ve f nctions of the body and intimate association with d seas s of the heart lungs liver and kid neys

4 The ref actory or retro act e relation hip in most case of c nst pation

5 The t ndency of neglected cases toward n f ctions nd cance

## SURGERY OF THE EXTRALIMITIES

### DISEASES OF THE BONES JOINTS MUSCLES TENDONS CONDITIONS COMMONLY FOUND IN THE EXTREMITIES

Bay r V F l l ng f Infected B ne Ca it s W  
h d l l h 97 N 9

When there a mechanical obstacle to the out flo of pus f om an infected bone cavity recovery is much delayed and may n t ccu The most un favorable site for uch c t es i the upper part of the t b a

The author n such case make an n ide pe foration of the tibia and effect a discha ge of pus through the calf musculature The procedure i anal gous to the d a nage of the knee joint to a d the back Compa d th other method the oper ations show that rea d a nage i apid and much mo e effect e Shutting off the tibial cavity may be d a ge ou Filling of the cavity by the organi m itself rather than by the u al ub tances was con side ed be t a d thi s is p omoted by fav ing the p oliferation of granula tissue a much possible Such granulat on develops best n m t su round ngs The author therefore keeps the cavity irrigated by fluid whch con tantly d ip The pus washed out f om all crevices by a str ng jet every twelve hour

The author after te ting the alue of se cal soluti ns f r the proliferation of g anular bone tissue find that distilled water hen not too c ld is be t There was more suppu ation when other fluid were used The pr gress of granulation may be observed almost from day to day Bone ca ties are generally cured in a few weeks lea ing a smooth surface without either anfractuity or fissu e

W A BRENNAN

Cav n G Penetrating Gun ot Wound of th  
Knee (L f t d m d f c p t te l  
g o h) P l l R m 97 x f t  
441

The author treated 104 knee v ounds in all of which the joint was involved The e vere only 8 deaths The other rec ered with 3 thigh amputa tions and 4 re ect on

In treatment the author thinks complete im

mobilizat on of the l mb from the f ot to the pelvis nclus e is of prima y importance When there is infection the t eatment of choice is arthrotomy and in very g ave ca e re ection

W A BRENNAN

Pau let V T le Tr atment of Hip W nds (P l s  
d l h h t t m t) P e m d Pa 97  
f

I auctet summar es the actual treatment of hip lesions in the var The operative indications are as follows

1 In recent intra articular fractures six to twelve hou sold a throtomy surg cal clearance removal of deb i regular zation of the cervical stump ether lavage and al form drainage

2 In int a articular infected fractures the same t eatment f llowed by the Carrel method

3 In recent extra a ticular fractu es the same t eatment a a complicated f acture with the re al of fo eign bodies and any loose fragments

4 In ecent infected extra articular fractu es the same treatment a in the preceding case with the Carrel method

5 In infected extra articular fractures if the patient sho s little resistance subperiosteal resec t n

6 In extra a ticular infected fractures fifteen to t enty days old subperioste l resection with Olle s rug ne

The techniques followed are

1 For ntra articular fractures Bernhard tech nique This in olves incision following the aus of the femo al head and neck exposure of the joint incision of the capsula resection trimming the edges of the wounded soft parts drainage

2 Fo e tra articular fractures Alquer and Tanton s technique which prov des e ternal verti cal incision commencing on the external face of the trochanter e posture of the great trochanter un cover g the capsula and splitting it surgical clearance with the rugine curette and osteotome

The post perat ve care is as important as the operat on itself Immediate orthoped c treatment consists of (a) immobilization (b) position Immo bilizat on is effected by a plaster ca t four articula

tions being included namely the two hip one knee and one foot The limb is placed in abduction and slight external rotation In cases of intra articular resection the thigh should be in slight flexion on the pelvis In extra articular resections the complete thigh will be put in extension

For intracapsular fractures immobilization will last two to three months and in the case of extra capsular three to six months

Later orthopedic treatment provides for the replacing of the plaster apparatus by a celluloid walking apparatus with a Reclus stirrup and the use of crutches for a time

The article is well illustrated W A BRENNAN

Terada M Myositis Purulenta Acuta Caused by Bacillus Typhosus Report of a Case *J Am Med Ass* 1917 lxxix 101

A case in which the typhoid bacillus produced pus is reported The lesion occurred in the right upper arm from the elbow to the deltoid insertion beginning as a painful reddish swelling about two weeks after the onset of chills and fever Incision brought forth a seropurulent discharge from the wound from which an organism was cultivated and found to be identical with one cultured from the blood of the patient This organism showed the cultural characteristics and responded to the immunological test of bacillus typhosus

The patient had a negative Widal reaction nine and fourteen days after the onset of the fever but autopsy findings and the clinical course of the disease including rose spots a temperature of 40.2 and typical ulcerations of Peyer's patches in the intestines justified the diagnosis of typhoid fever

W A CLARK

Clark H C Etiologic Factors in Gross Lesions of the Large Joints Observations from 100 Consecutive Necropsies *J Am Med Ass* 1917 lxxix 209

As a result of 100 autopsies on subjects from the laboring people in the Canal Zone 172 cases of arthritis were found Less than one per cent of those showing the lesions had been considered as arthritic suspects The routine examination of the large joints at autopsy was undertaken when it was noticed that a number of the laborers who showed a positive Wassermann test had associated with their clinical history some ill defined joint symptoms Those cases showing a degenerative type of arthritis associated with a positive Wassermann or with lesions frankly syphilitic were classed as syphilitic and of these there were 96 out of the 172 The next largest group comprised 33 cases showing arterio sclerotic changes Of the remainder 10 were classed as gonococcus 11 staphylo and streptococcus 10 undetermined 4 tuberculosis pneumococcus 2 meningococcus 2 traumatic 1 pellagra and 1 scurvy

The lesions found in the two large groups were all

about the same type The knee was the most common of the joints involved The joint cavity was usually dry or partially filled with a gelatinous straw colored material and the synovial membrane sometimes thickened red and granular The cartilages were always worn and sometime almost destroyed at the points of pressure such as the femoral condyles and head of the tibia In extreme cases large areas of bone were exposed at the points of pressure

W A CLARK

Mally and Corpechot Traumatic Monomyoplegias (Monomyoplegies traumatiques) *Re de chir* Par 1917 lxviii 281

The authors study is based on a group of lesions of the periphery nervous system caused by modern projectiles of war The following conclusions are reached

1 The term monomyoplegia is applied to the paralysis of a muscle due to injury of its motor nerve system after emergence of the corresponding nerve

2 Modern projectiles owing to their special penetrative qualities very often cause paralytic complications of a monomuscular type such as were rarely observed before the present war

3 Such paralyzes show the same clinical signs as paralyzes due to lesion of the great periphery nerve trunks the same alterations of electrical excitability of the paralyzed muscle with the same course and an identical prognosis

4 Their particular type is characterized by the localization of the paralysis to one or several related muscles and the functional importance is confined generally to the effect on the muscle group

5 The etiologic factor is a lesion of the nerve filaments innervating the muscle or of the terminal or collateral ramifications of mixed nerves or of their intramuscular zone

6 Such myoplegias in case of incurability call for surgical intervention Owing to the technical surgical difficulties of dealing directly with such minute nerve lesions surgical treatment may have to be confined to prosthetics

W A BRENNAN

Habhegger C J Acute Osteomyelitis of the Clavicle *Am J S g* 1917 xxi 309

Froehners statistics show that acute osteomyelitis of the short and flat bones is of much less frequent occurrence than osteomyelitis of the long bones This is probably due to the structure of the bones and the fact that their growth is less rapid than that of the long bones The clavicle is the most frequent of the bones classed as short or flat to become the seat of osteomyelitis infection While structurally a short or flat bone its growth at certain periods is quite rapid and it is subjected to great pressure and strain as are long bones It therefore really occupies a position between the short and flat bones and the long bone Infections of the clavicle have at times the characteristics of similar infections of short or flat bones which are usually quite mild and again



junction to above the ankle and involving the whole circumference of the foot. The skin was much indurated and a very thin pus containing yellow particles exuded from or could be pressed from numerous sinuses upon the surface of the foot. The glands in the groin were somewhat enlarged. A leucocyte count of 11 800 was found. An examination of the granule from the sinuses revealed actinomycetes in abundance. An amputation in the middle of the leg was performed and he made a speedy recovery. M A BERNSTEIN

## FRACTURES AND DISLOCATIONS

**Delorme E. Gunshot Fractures and Especially Their Displacements** (Des fractures par coups de feu et en particulier de leurs déplacements) *Arch méd et pharm: mil* Par 1917 LXVI 1

Delorme gives an extensive study of the mechanical factors concerned in gunshot fractures in the present war. This study in the first place has shown (1) that the German bullet does not differ in its effects from its predecessors (2) that shrapnel bullets produce very clear types of diaphyseal and epiphyseal fractures (3) that shell fragments and other explosives act like bullets and cause the same type of lesions. These lesions are (1) fractures without displacement (2) simple fractures with displacement (3) compound fractures more or less comminuted with displacement. In the present war as in previous wars these are the main types of diaphyseal fractures and in them the laws which have been established experimentally have been verified viz (1) that a diaphyseal fracture is the less extensive in length the greater the velocity of the bullet (2) but the greater the velocity of the bullet the more comminuted is the fracture.

Diaphyseal fractures from gunshot are less frequently followed by large displacements than the fractures of civil life. In the latter the agent which causes a comminuted fracture usually involves a larger surface of bone than does a projectile and better realizes the conditions necessary to produce displacement. The effect is continued after the breaking of the bone. The effect of a bullet is more destructive but is fleeting.

The very nature of a gunshot fracture tends to limit the amount of displacement of the osseous fragments. A projectile is less powerful in producing displacements than ordinary causes since its force is more direct and propulsive and acts rather on the splinters created by it. Besides muscular action which is the second cause of fragmentary displacement is less effective in gunshot fractures than in others. However if displacement is complete gunshot fractures follow the same laws as others and the lesion is aggravated if the patient has to be transported to a distant hospital with all the risks to which he may be exposed during transit hence the advantage of operating upon fractures as near the front as possible.

Delorme gives a detailed study of diaphyseal and

epiphyseal fractures of the hand wrist arm bones elbow humerus and shoulder together with several illustrations. In a later article the fractures of the lower limb will be dealt with. W A BRENNAN

**Tanton J. Traumatic Dislocation of the Pubic Symphysis with Important Distances Without Urethrovaginal Lesions** (Dislocation traumatique de la symphyse pubienne avec diastase importante sans lésions uréthro-vaginales) *Bull trévi Soc d'hir de Pa* 1917 LXI 636

Tanton in 1916 reported a case of traumatic symphyseal diastasis without urethrovaginal lesions. He now reports a second case due to an automobile accident. The patient also showed a fracture of the humerus with subcoracoid dislocation.

The pubic diastasis which was originally two fingers wide was reduced almost completely being helped by the application of a compressing pelvic girdle. W A BRENNAN

**Taylor G. The Treatment of Fractures of the Long Bones** *J Roy Army Med Corps Lond* 1917 LXV 493

The author's experience in treating war fractures in the Cambridge Hospital Aldershot leads him to conclude that in gunshot fractures every effort should be made to gain the best possible alignment at the very outset by non operative measures and to maintain that alignment by means of such splints as absolutely immobilize the fragments thereby promoting union controlling and limiting bacterial activity and relieving pain. In the case of gunshot fractures even late plating should be reserved for very exceptional cases. The author quotes a number of cases with illustrations to support his views.

W A BRENNAN

**Cahill G F. Fractures of the Os Calcis** *Ann Surg Phila* 1917 L 711

Fractures of the os calcis form from two to four per cent of all fractures. Usually the condition was overlooked or a mistake was made in the diagnosis until the injured foot and ankle were submitted to the X ray.

The calcaneum forms with the cuboid an arch which is part of the bony structure forming the arch of the foot. The os calcis is the base of the posterior pillar and its structure is such that it gives the greatest carrying strength for its weight. A fall the usual cause of injury to the os calcis causes a breaking down of this arch generally in the direction of the posterior pillar. This is due to the fact that the posterior pillar is more directly under the line of the body is more rigid and less elastic is shorter and its arch has a shorter arc. The denser astragalus is usually driven into the calcaneum and the fracture is usually impacted and comminuted.

Fracture of the os calcis are fractures of adult life. The average age in this series of 7 cases was 41 years the youngest 14 and the oldest 3 years.



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primarily be followed by a swinging shoulder. The secondary resection has given a solid articulation. The arm was kept in abduction of fifty degrees.

He thinks also that in cases of such extensive resection mobilization should be retarded as a general rule. The period of immobilization should be prolonged beyond the ordinary period in order to give the bone time to regenerate and to avoid reawakening of infection. W A BRENNAN

**Mayer L. Tendon Operations for Gunshot Injuries of the Hand** *J Am Med Ass* 1917 **13**: 2107

Mayer has recently published a series of articles outlining the principles of a new system of tendon transplantation based on the anatomy and physiology of tendon. The essential principle of this system lies in the coordination of each step of the operation with the exact anatomic and physiologic facts. At present a double significance attaches to a rational system of tendon operations. First there is a large group of poliomyelitis cases in which decided improvement of function can be obtained by tendon transplants. Secondly there will be unquestionably provided the war is not brought to an abrupt conclusion a large number of patients with gunshot injuries on whom similar operations can be satisfactorily performed.

The technique of his operation on severed flexor tendons consists in transplanting the sublimis tendon of the adjacent finger and suturing it to the distal end of the injured flexor profundus tendon, that is two adjacent fingers are thus supplied with the profundus tendons alone, since the one sublimis tendon is converted by the operation into a deep flexor.

The steps of the operation which he does under local anesthesia are as follows:

Assuming that both flexor tendons of the middle finger have been severed and that a mass of scar tissue about the size of a fifty cent piece occupies the palmar region and is densely adherent to the bone, the first incision runs from a point two inches distal to the annular ligament in a line with the tendons of the index finger to the proximal phalanx of this finger. The incision is deepened through the palmar fascia until the sublimis tendon is visible throughout its course.

The second incision is made distal to the scar tissue over the severed flexor tendons of the middle finger. It is about one and one half inches long slightly bowed with the convexity toward the little finger and extends to the base of the middle finger. The flexor tendons of the middle finger are then dissected free from the adhesions which usually bind them down. A subcutaneous channel is then bored with a dressing forcep from the proximal end of the first incision to the second incision. This step of the operation is usually rather difficult owing to the presence of scar tissue. Then the sublimis tendon of the index finger is divided at the metacarpophalangeal joint, dissected away from the deep tendon and drawn through the subcutaneous channel. It is then

sutured to the flexor profundus tendon of the third finger.

The after treatment consists in protecting the fingers and hand with a splint for at least four weeks after the operation. The author immobilizes the tendons for two weeks before starting motion. The best exercise are the voluntary contractions of the patient's muscles. Where difficult to secure the patient's cooperation he employed a galvanic current to secure the necessary muscular contraction. When twenty degrees of motion have been secured the tendon is strengthened by simple resistance exercise. G W HOCHREIN

**Harmer T W. Tendon Suture** *Boston M & S J* 1911 **11**: 803

In the opinion of Harmer unretarded strong healing of severed tendons after suture depends upon careful approximation of the severed ends by a stitch which will not destroy many tendon fibers either by transfixing or constricting and so placed that it will not pull out with early use of the tendon.

Since 1909 he has employed a method of treating severed tendons which is not very widely known. The stitch is of silk and consists in overcasting the lateral margins of both ends of the divided tendon. The overcasting starts about the width of the tendon or a little farther back from the point of division and comprises several whippings about the side of the tendon down to the line of division, each loop including somewhat less than one quarter of the circumference of the tendon. When a tendon is ready to be brought together each end then carries two stitches and each stitch two ends.

The two parts of the tendon are then brought together and the two suture ends nearest the line of division on one side are tied. The two longer ends on the same side are then tied. Then the two pairs of stitch ends on the other side are tied. Sometimes after tying the stitch the severed ends although in contact may slightly buckle. This is caused by tying the long suture ends too tightly and can be corrected by placing a simple stitch between the tendon ends. A dry wound before closing is desirable.

Swelling or actual hematomata will probably limit the amount of motion at first, may favor the production of adhesions or may encourage infection. Care is taken in closing the wound to approximate the fascia and skin separately. No splint is used. Active motion is started as soon as the patient has recovered from the anesthetic. The author believes it is important to start motion early.

G W HOCHREIN

**Skilern P G Jr. A New Method of Tubulizing a Tendon When Used as a Free Transplant** *Med & Surg* 1917 **1**: 108

Skilern reports a new procedure in tendon work to meet the requirements in the following case. The patient had cut the flexor tendons in the



coxofemoral disarticulation. Disarticulation with or without preservation of the patella generally gives unfavorable results. An intracondylar amputation is better. Tuffier thinks that amputation of the leg immediately above the joint is an excellent operation which gives favorable functional results without difficulty from the stump.

Tuffier discusses the common faults in leg amputations. They should be made as low as possible posterior strips rather than external or circular should be cut and care should be taken that the fibula is not sectioned below the tibia.

High amputation even in the tibial tuberosity gives excellent results even better than a thigh amputation and Tuffier recommends it.

Tibiotalar disarticulation with malleolar section intramalleolar amputation gives good functional results.

In the foot subastragalar disarticulation and canal osteoplastic amputation and the Syme amputation are to be recommended but not the Chopart. The Lisfranc amputation is of value.

For the upper limb the results are more satisfactory there are only 5 per cent of troublesome stumps. The important thing is to amputate as far as possible from the shoulder. In the arm preservation of the head of the humerus is preferable to a shoulder disarticulation. From a functional view point a stump shorter than four finger widths does not give satisfactory prosthesis. W. A. BRENNAN

### ORTHOPEDICS IN GENERAL

**Brown L. T.** A Combined Medical and Postural Examination of 746 Young Adults. *Am J Orthop Surg* 1917 25 774

This work was undertaken in connection with the examination of the entering class of Harvard College the orthopedic research being done with special reference to the posture of the body and its relation to other physical conditions.

Schermatographic tracings were made of the men. With their clothing removed they were made to stand with their heel on a line in front of a screen. In this position profile tracings were made first in the natural position assumed by the individual and secondly in the best posture obtainable.

The vertical line test was employed as a standard in those tracings which seemed to be up to the standard. It was found that a line drawn upward from the external malleolus or the mediotalar region so that it passes through the trochanter or the middle of the thigh would also pass through the shoulder and the front of the ear.

There were four points of variation from the normal on which the series was graded: (1) variation of the head and shoulders from the vertical line; (2) a forward position of the head; (3) a relaxed abdomen; and (4) an exaggeration of the normal curve of the spine.

The standard or normal was graded A. Those who had only one or a slight variation from the

standard were placed in grade B. Those who had two points of variance were graded C and those who varied to the extreme in some or all points were graded as D.

Out of the 746 examined there were 50 in grade A, 90 in B, 413 in C and 193 in D.

In comparing the results with the medical examination grades C and D were found to be more prone to sickness than grades A or B. Backache was not complained of in classes A nor B while 6 of class C and 17 of class D gave such a history.

As regards albuminuria grade A had 1 case, B 1 case, C 14 cases and D 1 case.

Tonsil and adenoid operations had been done in a slightly greater number of cases in grades A and B than in C and D.

The operation for appendicitis had occurred 1/4 times as often in grades C and D as in A and B while 2 times as many men in grades C and D as in A and B had had two or more operations.

These studies seem to lend positive evidence to the theory that faulty posture is a cause of ill health while correct posture is conducive to health. R. B. CORFIELD

**Ambrose T.** The Treatment of Pott's Disease by Autogenous Tibial Bone Graft. *Albee's Operation*. *Med J Austral* 1917 11 413

The advantage of treatment offered by the Albee operation for tubercular spinal disease are shown by the author. The operation is not difficult to surgeons accustomed to bone work but some discretion should be shown in the selection of cases the very young and weakly and those with exaggerated deformities should be carefully considered before operation is advised.

The advantage the author states is in lessening the time of treatment. Eminent authorities place the duration of the treatment at from five to seven years. Albee's operation enables the patient to get about without support of any kind after six to eight weeks of recumbency.

There are practically no contra indications according to Albee except a septic condition of the skin over the area involved. Even abscess formation is no contra indication to the operation.

The purpose of the operation aside from reducing the duration of treatment are to relieve pain and prevent further deformity.

The technique of operation is as follows. An elliptical or quadrilateral flap of skin and fat is reflected to avoid a midline scar. The spines and interspinous ligaments are incised with scalpel and chisel the spines split and one half broken off but left attached by soft tissues. One or two spine above and below the affected area are also split as mentioned. Into the gutter thus formed is inserted an autogenous bone graft removed from the tibia. Albee insists that the graft be so cut as to include periosteum, bone endostium and bone marrow. The author has had good results by using a graft from the crest of the tibia. The graft is secured in

place by strong chromic catgut or kangaroo tendon. The strong dorsal aponeurosis is then secured over the site of the graft. JOHN MITCHEL

Funk	E	H	O t	t s	Defo m ns	M d	Cl	V
1		97	45					

The author call attention to the rarity of a disease in the fact that only three case e c noted among 38 00 admission to the New Jefe on Hospital during a per d of seven years There are only record of 23 case in the literature Funks case s a oma hte aged 5 Sh complained of rheumat c pain in the ppe part of her htle and sho tly after ad nced that the thigh s a bending and that the e s a limp in her gait The pain grad ally became le severe the deformity more and more marked and th leg became sh rter

On examination the right femur showed marked thickening throughout its entire course and a marked outward curvature. The X-ray study of the right femur showed the characteristic changes of osteitis deformans. The bone was unusually dense. The greater trochanter and the neck of the femur had a mottled appearance that was characteristic of the disease. There was an entire lack of bone detail in the pelvis because around the acetabulum on both sides indicating that these bones were involved. The skull which was not much thickened showed evidence of involvement.

The symptoms of the disease are first vague pain usually in the extremities or back. Later the disease is a local bone deformity usually a thickening and curvature of the tibia or pelvis and enlargement of the skull. A hereditary history is obtained in seven per cent of the cases. The disease occurs usually after forty years of age. Cases are rarely as early as twenty and as late as seventy years of age on record.

The Wassermann reaction is positive in only one fifth of the cases. Antilutec treatment has been tried without avail. Due to the ductless gland is supposed to be the cause of osteitis deformans. Treatment with a view of influencing the calcium metabolism, being tried, the being at present not satisfactory treatment. The prognosis as regards cure is hopeless although as regards life the disease is often curable with a long and active career.

J J KU AN

Port J L Th T eatm nt of Rl eumatoïd  
A th it s of tl Hype t opl ic Type I t t  
J S g 9 7 8

While learning something definite of the underlying etiology of hypertrophic rheumatoid arthritis the author asserts it is treatment continue to be empirical. The aim has been chiefly to relieve the pain and make the patient comfortable. Every measure has been exhausted to hunt out the focus of infection and eradicate it. The whole system has been examined for a lurking place for infection.

The author is convinced that the great mistake made in the treatment of rheumatoid joint affection

has been to permit the patient to use the joints. Nature offers the mode of treatment but it has not been recognized. The patient himself says that motion makes the pain unbearable.

The following treatment as advocated by the author : given as a preliminary measure to a course of investigation of the physical, chemical and bacteriological etiology of the affection.

The patient is put to bed. The affected parts are bathed in tepid water saturated with this lotion. The patient is given 3-4 plumbago subacet dil 40 tr 1. ca 50. mild t hamamel d 60.

The joint with the covered the flannel fomenta-  
 tion upon the out of the ate about the upped  
 a rubber sheet the H the bottle e placed upon  
 the rubber sheet I entati and hot water  
 bottle a ene el y tw tle e hours or s  
 often they get i The g u e trips are mo ten  
 ed the time d y

At the time the doctor said the sacral injury  
 knee hip elbow tract not applied it is a head  
 and palsy The spine stretched by means of a head  
 halter making traction in the chest and occiput In  
 all these locations treated about Buck's extension  
 used The treatment continued until all pain and  
 tenderness gradually appeared Then the affected  
 patient immobilized in a plaster of Paris cast The  
 duration of treatment subject to the condition  
 of the patient If after four weeks pain and sensi-  
 tiveness have not ceased a second cast applied  
 Later a hard may be used to replace the cast

The author evaluated the impact of the intervention on the formalin and oil joint cases. The results showed that the intervention was effective in reducing the number of formalin and oil joint cases. The intervention was implemented immediately before the cases were reported to the joint.

Supplymentary treatment consists of general systemic treatment and elimination. Often the author believes that attention on the final pre-treatment of animal products is the cause of chronic inflammation.

JOHN MITCH

Gillette A J nd Cl att e t n C C M h nical  
and S rg c l T tment of Ant ri Pol o  
my l t J L t g 7 69

Ant 1 r p h my l t the author state should  
be th n me applied t the d ease under d: ussion  
Infant l p al y a m n me to the d e se is  
an affect n f hldh d a d d ole cence and is  
rarely e rse n n wal v in infan y

The onset type 1 Each case may present a different method of attack. The case may be febrile, pharyngeal, neuromuscular. Aggravation of the disease manifests itself by paralysis at the onset.

The statement is made that the physician knows more and has discovered more in the care of patients on and time of antenatal and postnatal than it has in the past. The fact that the physician knows more and has discovered more in the care of patients on and time of antenatal and postnatal than it has in the past does great good. The effect of the physician's knowledge of the disease of the patient in a treatment cannot be excused.

The symptomatology is well known. The treatment is that of any other infection in its incidence. Rest and elimination are first to be considered. Massage and electricity also have an important place in the therapy but these are inadvisable during the painful stage. Many deformities which result are due to the careless, ignorant or indifferent attitude of the practitioner. Mechanical treatment alone prevents and even practically cures deformities which later would have to come to the operating table.

Surgery of anterior poliomyelitis at present deals only with the chronic stage. The success of each surgical procedure depends upon the location, action and pathology of the part involved. The authors enumerate examples of operations on tendons for the correction of deformities. Tendon operations are especially valuable in foot deformities. Tendon fixation is meeting with great success. This operation consists of burying the tendon under the periosteum of the bone in a groove prepared for its reception. This operation is useful in flail conditions of the hand and foot. Tendon transference has resulted in remarkable corrections of deformities.

The principles of tendon transference are these: (1) to use muscles that have nearly the same physiological action as the paralyzed groups; (2) to establish muscle balance; (3) to correct deformity.

Foot deformities lend themselves best to this method of treatment. The authors mention several operations of tendon transference:

1. Transference of the extensor hallucis longus and the common extensors to the heads of the metatarsal bones for claw foot, hammer toe and foot drop.

2. Transference of the tibialis anticus to the opposite side of the foot for equinovarus.

3. Transference of the peroneus longus into the tibialis anticus for talipes valgus.

4. Transference of the peroneus longus into the tendo achillis for talipes calcaneus.

Myotomy is replaced by mechanical stretching. The procedure of Soutter of Boston for marked lordosis of the spine with the thighs on the abdomen due to contraction of the iliopsoas deserves mention. After an incision over the anterior superior spine all the muscles attached to the crest of the ilium are loosened and the thigh brought down from its flexed position and held with plaster.

Bone operations are necessary only in extreme cases of deformity; the authors assert. Astragalec-tomy as advocated by Whitman for flail conditions is useful. Arthrodesis is used most often as an aid to other operative procedures. It is of value in chronic dislocations of the hip and shoulder.

JOHN MITCHELL

Moxey, V. Recent Orthopedic Surgery. Practitioner, Lond. 1917, xciv, 462.

In Pott's disease operative fixation of the spine is done to shorten the period of recumbency and to hasten the period of cure. The methods of Albee

and Hibbs have for their aim the production of ankylosis of the contiguous vertebrae. There is an element of risk in handling the patient while under the anæsthetic; the possibility of causing a fracture of the spine due to the pathological process must be considered. There is also danger of dissemination of the tuberculous process. Rutherford believes that children under five years of age should not be operated upon. Bradford holds that the splinting of a fractured spine by the bone graft after the immediate symptoms are past is a rational procedure.

The treatment of scoliosis by the various methods of support leaves much to be desired. Just as it is necessary to keep a club foot for a time in an over-corrected position so it is necessary to apply the same principle in the treatment of scoliosis. This however has not been found satisfactory or even possible.

In the surgery of paralysis due to injury in complete or in most cases of non-improving partial paralysis an inspection of the nerve is indicated. The nerve having been found and the fibro-ed ends cut away, coaptation may be secured by flexion of the limb by freeing and stretching the nerve or by shifting it to a new and shorter course. The nerve is then sutured. The repaired nerve is wrapped in a tube of loose fat or autogenous fascia. If coaptation is impossible even after the nerve has been stretched much may be done in the way of muscle and tendon transplantation, e.g. the biceps or semitendinosus may be inserted into the patella for a paralyzed quadriceps.

As regard bone grafting the use of the autogenous bone graft in ununited fractures to fill a gap or to prevent displacement in certain difficult fractures is more in favor than the use of foreign bodies such as steel plates, screws or wire. The bone graft was also used to stabilize the ankle in infantile paralysis. The graft is cut in the shape of a bone peg and driven down through the lower end of the tibia, astragalus and os calcis. The results at first were excellent but later failed, the ankle being freely movable.

In flat foot Soule claims good results from a combination of arthrodesis of the astragalus and scaphoid joints with an autogenous bone peg driven through the scaphoid into the head of the astragalus. Silk ligaments are being less used than formerly as the silk often acts as a foreign body and the irritation it produces necessitates its removal in many instances. Spasmodic club foot or the so-called hysterical club foot is usually a varus or equinovarus associated with more or less vasomotor changes. It is very obstinate to treatment; forcible treatment and electricity making the condition worse. As to therapy the gentlest measures such as warm baths and light massage are best.

In congenital dislocation of the hip there is no improvement over the present bloodless method of reduction and Galeazzi claims 84.46 per cent of cures in a series of over 1000 cases. These were cases of children under the age of four.

J. J. KURLANDER

## SURGERY OF THE SPINAL COLUMN AND CORD

Henninger C H Cord and Nrv Affections  
Ca is ng Low Back Pa A J O H P S g  
0 7 8 4

A n may be pre ent and severe in pina bnda when the cord p ope o cauda equina is anchored by adhe i n n arou d the sac The p in is cau ed by a tretching, or rrtation of the ne ve o ts when the relati e po ti n of the ord and ve tebræ s cl nged by the r unequal ate of develop ment Scle o of the blo d es el applyin the po ter or g n, h i a cau e of seve e pain Sp nal men n eal hemorrhage cau es e ere pa n n the ba k th udden n et and the e pa m of the ba k mu le Hæm rhage into the ub tance of the cord if large cau e a s dden and e ere pain and i foll ved r p dly by symptom of myel ti In pachym ngit externa spinali the pa n symptoms a e th e of e o y r ot rritation or comp ess on The p in symptoms of acute pinal leptome ngitis often per ist long after the acut stage has ubside

In the early stage of acute pol omyel ti there i a generaliz i hyperæ thesia with back pain the pains radi t ng to the parts ub equently araly ed In yr ngomyelia v th cu ature f the spine loy back pai a e c mm n f llo in e ertion Tum of the e tebr l o lum n membran and p nal cord prod e local b ck p ns v hich a e inte e and the e may be mot r ir itati n a s cated In caudal nea i the ymptom are i l to caudal tumor Syph lit c proc e m y nvol e n v o all of the tructure unler c ideration nd mav simulate any f the ub e ner e c nd t n but as a rule lo b ck p in ar t c mm n n syphilis

In tabe d al the girdle pa n are f some diagnost c alue In multiple neur ti pa ns in the back are often an et ly sympton alth ough p i are not usually common n thi c n liti on Ne romata of the pe ipheral ne e in the lumba regi n are an occasio l cau of p n v c o e v s in the lo er port on of the men geal sac and calcareous depos ts on the inner urf ce f the sp n l du i are am ng the ra er cau e of pain

Pa n n the back due to njury r ju e spe al cons deration There i pe sistent eve e p in hch i s creased on motion There i lo r gidity of the spine and tende nes on pre ure Lo b ck i in this t pe may readly come f om a st te of exha tion The term cat ca is limited to a pr mary involvement of the sciatic n and the pa n is the result f a eurt In addition to the pain there may be ne the a mu c la atrophy elec trical reaction of ner e legeration ith lo of tendon jerk Th may be d et njury contin ous p essu e a ill on the buttock e e e mu cular e ert on chronic into icat on infecti n diabete etc The mo t evere back pain a e e n n d ead

processe caus ng pressure on a nerve root Re t is ind cated nd i po ibly the be t treatment for inflamed ner e conditions J J KURLAN ER.

My rs T H The Bone Graft in Tubercul u  
D e of the Sp e I l t f S g 9 7  
34

The bone graft in tuberculo s of the spine is imply a mechan cal de ice to e ure no e c mplete immobilization of the d e sed vertebræ The autho s ert that th mmobilization ho ever is not c mplete a the a t tular s rfaces and bodie of the vertebræ a e not held but that nly the spinous pr e and the lamina to me e t nt become fu ed He conclude that lat ral support sh uld be continue for a l ng t me a ap t perat e meas ure until the adj e t tube cul u urf s may become c n ol dated To the l ck of su h supp rt the auth ble v y be att ibuted the cau e of elap

I rom h s ol er ati n of a teen a es he c ncludes that b ne graft n dult la t longer than n hildren In some c e th g th fu ed ith the ve tebræ He does n t u e the lateral plnting ch p ince in ne ca e t p r el the k n and had to be removed and i n ther it i m ned unatta hed f a long t me a ap na d d mfort

The uth ad t k ng an v ay of the bone f om wh h the graft t be taken i e e f m l t ple o t myeliti nce hile the bone may appea n rmal t the naked y pon v ay t ll ho v foc i h em t

The uth m de a tuly f large numbe of case f lo t tle ith paraplegic symptoms to dete m ne the pr f ble du at n f the e sympton n c e tr t d th brack and ret in bed The ca n the mido sal re on e e pa al zed on an av ge t e and ne halt m nth v ile n tho a e hch ere op rate l upon the period f pa pl a a h r t ead

The e ult in the s teen c e perated upon we ca f ll n put ent d e f om stat l ym ph ti u n pat t d ed fr m a b e c nected ith mult pl f f o t e myel ti th e e pat ents sh ed m r mpr vement than v ould probably hav take p ce tho t th op at on leven ca e e e ith r cured o h ed v e y much im p v m nt

The op e at is l ited n f t e f the pine w th ut ympt m f i j v t the co d Ca es of thi k nd d el p de f omity e k o e en month afte an injury The delay l u on due to the small e of the f a t u ed pr t h i h mak im mobil to mp sible The author concludes that thi pe at o ll appreciably shorten the per l of l t t d e a e and dim n h the amo t f e i t ng and p obable def rmity t v e y little ope a t e k

M A BERGSTR

## SURGERY OF THE NERVOUS SYSTEM

Souttar H S Some Points Arising in Nerve Injuries *Brit M J* 19 7 11 817

This paper is founded upon an experience of 60 cases observed at one of the English base hospitals. The injury has been a primary one in every case, either the direct and immediate result of the wound or some supervening condition such as an aneurism or of some nerve injury surgical interference. The wide spread belief that many nerve injuries are secondary to inclusion in fibrous tissue or callus must be abandoned. The nerve may be completely severed with the formation of end bulbs or a portion only may be replaced by fibrous tissue but even in the latter case careful examination will show that some fibers at least were totally severed. That spontaneous recovery may occur is explained by the fact that one third of the fibers of any nerve may be destroyed without any permanent loss of function. The injury being primary suitable treatment should be begun early and much can be done by preventing contracture, keeping muscles in good condition and keeping joints free so that favorable conditions are present when the time comes for the nerve to regenerate.

The area of analgesia will be a little less than that of pain. Occasionally one finds exquisite sensitive areas instead of anesthesia. This indicates an interstitial neuritis and insufficient injury to the nerve to destroy its conductivity. A knowledge of the cutaneous areas supplied by the ulnar, median and musculospiral nerves in the upper and by the external and internal popliteals in the lower extremity suffices for at least 90 per cent of the cases. Accurate charts of the area of anesthesia must be kept and checked every few weeks for the signs of recovery are very slow to appear. The most marked trophic disturbance is a glossiness and dryness of the skin with occasional increase of sweating. The skin is cyanosed or deep red in color, actual ulceration usually being due to accident. Deeper tissues undergo atrophy, even the bones losing their lime salts. These trophic changes are most marked in partial and irritative lesions where they may be accompanied by excruciating pain of an intense burning nature and a tenderness so severe that the slightest touch is intolerable. It is not easy to ascertain the extent of diminution or total loss of voluntary power in the muscles supplied by the nerve. This is the result of other groups of muscles imitating the action of the paralyzed ones or the pain of a fracture may render totally inactive a group of muscles which are really intact. One must be familiar with the action of the muscles supplied by each of the principal nerves of the arm and leg. The electrical reactions can be elicited with a small induction coil and a few cells. The first symptom of beginning recovery is quickening of the characteristic slow undulatory contraction after galvanic stimulation.

A nerve injury overshadows every other in importance. Splints must be applied so that paralyzed muscle are relaxed and joints placed in the position in which they are most useful when ankylosed. Physical treatment must be carried out under supervision of an experienced staff. Massage, passive exercise with the Zander apparatus, whirlpool baths and electricity form the most important portion of the treatment unless operations are deemed necessary. The principle of the whirlpool bath is that the limb is surrounded by a stream of rapidly moving water at about 110° F. It accelerates the blood flow while gently massaging the limb, the limb after twenty minutes showing a remarkable relaxation of the contracted muscles and ligaments.

The sinusoidal and galvanic currents are the only ones employed in the electrical department. In the interval between treatment every effort must be made to keep the paralyzed muscles relaxed, the limb warm, the atrophic skin protected from injury and to prevent the development of contractures.

Operation should only be done at least six weeks after all danger of sepsis is past. The fibrous tissue is removed until nerve fibers can be plainly seen. Catgut sutures are used to approximate the ends. The author prefers a long incision because it may be very difficult to find the nerve ends at all and first isolates the nerve on both sides of the damaged portion. Usually this wide mobilization of the nerve enables one to unite the ends by direct suture. In the case of the sciatic a gap of three inches can be overcome by flexion of the knee. Where there is a large gap there is usually a large end bulb on the proximal end. He turns down a flap as far as the bulb which forms a sort of hinge. The terminal half of the bulb is now amputated and the raw surface folded over itself and sutured. In this way the living fibers are preserved to almost their extreme point and a living scaffold is formed for their downgrowth. The results of this method have been most gratifying.

For other cases it is best to use a radial nerve as a graft for bridging a gap. It is of small diameter and its removal leaves as a rule no disability. Autogenous grafts are preferable to catgut or animal nerve.

D N EISENDRATH

Durocex L and Couvreur A An Experimental Contribution to the Study of Division and Functional Restoration of Nerves *Med Press & Circ* 1917 41 369

The results of a series of experiments on dogs are reported so arranged and carried out that they are made available for elucidation of the unsolved problems of nerve restoration.

The conclusions arrived at are as follows:

1. From the motorial viewpoint the dog does not behave as does man. Division of even important



nerves such as the great sciatic or the external popliteal is not followed by troubles of locomotion except slightly marked and transitory ones

2 The idea of the possibility of immediate restoration of the functions of a divided nerve is purely illusory. Restoration after long period of intervening failure are the only real ones. In those cases in which such have been definitely established physiology has demonstrated and the fact has been corroborated by histologic observation that the peripheral segment does not regain its function until after it has been penetrated by the axone of the central one

3 In cases of complete division of a nerve trunk it is necessary to have recourse to suture and some time to grafting when there has been extensive loss of substance

4 It is necessary to free a nerve trunk when it has been subjected to compression by proliferation of connective tissue. Such proliferations interfere with the functions of the nerve involved and also threaten the functions of the other nerves of the limb

E. B. FREEMAN

Thoma J. J. Neurologic Indications for and Against Operations in Traumatic Injuries Affecting the Central Nervous System

In a review of the surgery of the central nervous system Thomas emphasizes the following points

Case of dislocation or fracture dislocation of the spine in all regions without signs of injury of the cord simply require fixation of the spine

It is useless to operate in cases of complete transverse lesion of the spinal cord unless it is found impossible to prevent slipping of the fragment by any other method

Where there is compression of the cord by fragments of bone operation is indicated at once

Depressed fractures of the vault of the skull if compound should have loose fragment removed or elevated. If simple with depression of the inner table of the skull or gnathion of the brain beneath operation should be done. As a rule little should be done beyond the removal of the blood clot and the relief of intracranial pressure

In burst fracture of the skull which in the nature of a fissure often multiple running to the base of the skull if associated with gradually increasing intracranial hemorrhage whether due to rupture of the meningeal artery basal or other sinuses presents demands for relief of the hemorrhage

Intracranial pressure demands relief by operation in cases with deepening unconsciousness slowing of the pulse blurring of the outline of the optic disc and tearing of blood vessels or an increasing pressure of the cerebral fluid

On the other hand widespread effusion of blood from hemorrhage into the cerebral substance is influenced but little in its course by operation. The not reliable signs of this condition are fixed rigid pupils most often dilated which have no reaction to light and steadily rising temperature in the absence of infection

The most reliable sign of extensive destruction of cerebral tissue. It is hardly necessary to add that the presence of profound shock is always a contra-indication to operation

The author states that one should guard against advancing the use of apoplexy or intracerebral hemorrhage which in fallow have received injury of the brain

He mentions still another class of case of fracture of the skull in which operation of value. These are the cases in which there is no paralysis and no definite reasons for operation either exploratory or decompressive and where the patient improves up to a certain point and then shows a persistent mental slowness perhaps with instability. In the few cases here he has advised opening the cranial cavity he found a dura with an organizing blood clot adherent. Marked and rapid improvement in mentality followed almost immediately the removal of the clot or the lessening of the tension by opening the dura when the clot was not accessible

In deciding in favor of operation in fracture of the skull one should always have in mind that the most important object aimed at is the relief of the increased intracranial pressure no matter to what it may be due

G. W. HOCHREITZ

## MISCELLANEOUS

### CLINICAL ENTITIES—TUMORS, ULCERS, ABSCESSSES, ETC.

Symmers D. Acute Lymphatic Leukemia and Lymphatic Leukosarcoma. Lymphatic Leukosarcoma. Anthrax. Acute Syphilitic Glomerulonephritis. Acute Necrotic Gangrenous Infection

Among 560 necropsies performed at Bellevue Hospital in the past eleven years there were 8 cases

of lymphatic leukemia and of this number 5 were of the chronic variety and 3 acute. Acute lymphatic leukemia is of great clinical importance especially with reference to the possibility of an infective origin and also as bearing upon a fatal and apparently little known disease described by Sternberg under the title of leukosarcoma. The author details three cases of acute lymphatic leukemia

The term leukosarcoma was introduced by Sternberg to indicate a disease characterized by the pres-

ence in some part of the body of a definite tumor composed of lymphoid cell which are eventually poured into the blood in such numbers as to constitute a true leukemia. Two varieties of leucosarcoma are recognized one in which the original growth is made up of cells of the lymphocytic type the subsequent infiltration of the blood representing a variety of lymphatic leukemia and a second in which the original focus is composed of myelocytes the discharge of which into the blood gives rise to leukemia of the myelogenous type.

The recognition of lymphatic leucosarcoma depends upon three factors first the existence of a tumor which upon microscopic examination reveals the histologic picture of a lymphosarcoma the cells contrary to the usual arrangement consisting almost exclusively of large lymphocytes with an admixture of small cells in occasional instances however this order is reversed. Secondly the original focus of growth may exist for weeks months or years before invasion of the blood stream occurs but involvement of the blood when it does take place is abrupt and the disease then progresses with extreme rapidity. Thirdly the disease is accompanied by enlargement of the spleen the lymph nodes in various situations the liver kidney etc due to diffuse infiltration of lymphocytic cells to or their presence in circumscribed collections in short the disease as its name implies is a variety of lymphosarcoma with leukemic transformation. The author details a case of lymphatic leucosarcoma.

Among animals geographically as well as zoologically anthrax is the most widespread of all acute infective diseases. In recent years the occurrence of anthrax in human beings has undergone a notable increase and it is now regarded by students of industrial conditions as an occupational disease of moment. In general hospital work anthrax is commonly regarded as a rare disease. The prognosis of anthrax depends upon several factors and the mortality varies within rather wide limits for example the malignant anthrax oedema of the face and neck is invariably fatal largely because of infiltration of the soft tissues around the larynx pharynx and oesophagus. In the same way the wool sorter's disease which is an anthrax septicaemia with intense pulmonary and cerebral symptoms and anthrax of the intestinal tract are likewise deadly. The malignant pustule on the other hand not infrequently heals and the patient recovers. In the case of malignant pustule of the face however the mortality is five times greater than that of an extremity in which only about 5 per cent of cases terminate fatally.

There are several points in the pathology of the anthrax pustule that are of practical value in determining the method of treatment. At the outset the malignant pustule is essentially a localized lesion and the causative micro organisms are confined within a limited zone at least for a time invasion of the blood occurring as a late event. If taken sufficiently early therefore excision of the pustule

offers the best chance of recovery. At the same time it is unwise to incise the oedematous tissue in the immediate vicinity of the pustule for the reason that the gelatinoid infiltration the so called an thraco mucin of the lymph spaces is of the nature of a protective mechanism in the oedematous area the anthrax bacilli are rarely to be found. Incision therefore not only does not drain the affected region of animal bacteria but is actually harmful opening the way to secondary infection and breaking down a barrier to the spread of existing infection.

The specific anti anthrax serum of Scavo is said to have reduced the mortality to a marked extent. More recently still the government authorities in the Argentine have been using normal bovine serum intravenously in large doses and it is said that the results are even more favorable than from the use of specific antiserum. The author reports two cases of malignant pustule occurring on the chest wall.

In early secondary syphilis transient irritation of the kidneys is not uncommon. On the other hand syphilis is sometimes the cause of acute inflammatory changes in the kidney of such nature and extent as permanently to disable the kidney or even to cause death in bedside work and in the experience of the necropsy room acute syphilitic nephritis is exceedingly rare. In the case detailed by Symmers death occurred after a brief illness and the changes in the kidney were of the same type as those encountered in the acute nephritis of scarlatina.

Hyperactivity of the anterior lobe of the pituitary coming on before the completion of epiphyseal ossification results in gigantism that is to say the individual is overgrown but well proportioned. After epiphyseal ossification is complete however hyperactivity of the hypophysis results in acromegaly with or without gigantism. That the relationship between acromegaly and gigantism is close is shown by the fact that a considerable percentage of acromegals are giants and that a still larger percentage of giants develop acromegaly.

The pathologic changes in acromegalic gigantism may be grouped as follows (a) changes in the bones and cartilages (b) enormous increase in the size of certain viscera notably the heart lungs liver and spleen (c) atrophy of the genitals (d) disease of the pituitary such as adenomatoid hyperplasia replacement by syphilitic or tuberculous granulomata cysts hemorrhage etc (e) finally acromegaly is not uncommonly attended by changes in the ductless glands other than the pituitary. Status lymphaticus is sometimes recognizable in acromegalic subjects. Acromegaly usually begins in the third or fourth decade. It is rather more frequent among men than women. Heredity appears to play a rôle. For example it has been observed in both parents and a child in father and son in father and daughter in mother and daughter and in the case outlined by Symmers in two brothers. The author describes in detail the necropsy findings in his case of a Lombardy giant of 8 feet and 10 inches.



Macleod N. A Preliminary Note on the Ray Detection of the Presence of Cloth in Wounds *Brit Med J* 1917 ii 791

This preliminary report is based on the discovery by means of a stereoröntgenogram of a piece of reed *in situ* in a leg after injection of bismuth emulsion into a sinus leading to it. It had not been detected by a similar examination made prior to the injection. It is believed that pieces of cloth in fresh wounds or old ones that refused to heal can be similarly demonstrated. To substantiate this contention the author thrust a piece of khaki cloth into the interior of a lump of ox liver injected similarly to the above and was able to distinguish clearly the texture of the cloth. ADOLPH HARTUNG

Duane W. Methods of Preparing and Using Radio Active Substances in the Treatment of Malignant Disease and of Estimating Suitable Dosages *Boston Med J* 1917 cl ii 787

The report 1 from the Huntington Hospital Boston where about five hundred new cases of malignant disease are seen each year.

Radium belongs to the group of metals but is unstable to a certain degree in that it is transformed into another substance a chemically inert gas called radium emanation. It would require 1700 years for half a given quantity to disappear. The emanation transforms itself into a substance called radium A half a given quantity of emanation disappearing in 3.85 days. Radium A changes into radium B half of A changing in 3 minutes. B changes into C half disappearing in 26.8 minutes. C changes to D half disappearing in 19.5 minutes and so on up to radium F which is the last in line and known as polonium and which was the first to be discovered. Radium A, B and C etc. deposit themselves on anything with which they come in contact and are known as deposited activity.

By radio active substances is meant substances that continuously emit peculiar types of invisible rays that differ substantially from light and heat rays. The radiation if sufficiently intense destroys tissues. Radium C produces by far the most penetrating rays. Radium tubes are not used until the rays have had a chance to penetrate the walls of the container and the radium is then only used to produce a certain amount of emanation and this in turn A, B and C. The deposit of radium B and C can be obtained as follows.

1 The emanation may be extracted from the radium and pressed into a glass or metal container of any desired shape and size and the radium A, B and C allowed to accumulate. The emanation if left in the tube prolongs the activity time but does not add to the penetration.

Radium A, B and C may be deposited on sheets of metal or other substances by leaving them for several hours in contact with the emanation.

3 Radium A, B and C may be dissolved in water either by dissolving the purified emanation

or by depositing the radium A, B and C on grains of salt for instance and dissolving the salt in the liquid. A large amount of activity can be put in a few drops of liquid and this injected into the blood stream.

The apparatus described includes

- 1 A system of glass tubes and reservoir for purifying the radium
- 2 Tubes and containers for the radium
- 3 An instrument for accurately measuring the quantity of the radio active substance in the application on the tissue
- 4 An instrument for roughly and rapidly estimating the quantity of radio active substances in tubes and applicators
- 5 An instrument for detecting the presence of radio active substances. This is used in finding lost tubes and determining if tubes previously used are intact.

The unit of measurement of radium is the curie which is the quantity of emanation in equilibrium with one gram of radium element.

One of the advantages of using the emanation instead of the radium is that it can be put into much smaller tubes and a greater variety of size and shape can be obtained.

Gauze is 7 times wrapped about the applicators as it cuts off the secondary radiation coming from the surface of the lead which is not very penetrating and would cause irritation and it raises the applicator up from the surface of the skin thus reducing the amount of radiation absorbed in the skin as compared with the amount absorbed at a distance below the surface.

The following cases are reported

1 Lipdermoid carcinoma recurring after operation. Small glass tubes containing from 1 to 0.9 millicuries of radium emanation were inserted and remained in place from ten days to two weeks.

Lipdermoid carcinoma. Glass tubes were inserted through a trocar into the tissues. An emanation from 10 millicuries was used remaining in place about two weeks at a time. During the later part of the treatment steel tubes containing 15 to 34 millicuries were used. At the end of the treatment microscopic examination showed no evidence of new growth.

3 A case of keratosis widely distributed. Glass and steel tubes were used the glass tubes for two or three weeks and the steel tubes from one half to one and one half hours. Emanation varied from 14 to 47 millicuries.

4 Superficial carcinoma of the breast. During three years the patient received 64 treatments of emanation varying up to 142 millicuries lasting from one to three hours.

5 Sarcoma of the face. In 10 months 2 treatments were given varying up to 59 millicuries.

6 Malignant lymphoma. Gamma rays only were used. The dosage was from 31 to 550 millicuries with an exposure of from 8 to 48 hours a total of 93 756 millicurie hours.

7 Myelogenous leukaemia. A marked eduction in white blood cell and the size of the spleen followed.

All the cases treated above showed very satisfactory results. C. A. BOWEN

**Brok v r C. Th. P. ripl al Distribution f tle N r u t r minali in an Infant J C n p V ol 19 7 347**

This discussion is based upon the study of the series of sagittal sections of stillborn negro infants at about full term. The tissue was prepared by Huber and Guild modification of Ransmayer's pyridine silver method.

The author summarizes his observations by saying that the peripheral nervous system is so large in man that it may be said to be hypertrophied compared to the known development in other mammals without proportionately increasing its central root.

In addition to many cells in the ganglion terminal contents about fifteen hundred cells peripherally under the nail mucosa. Though developed in three or four chambers from the lamina cribrosa, a third is a vast network of telodendria branching to the main arteries. Some of the fibers travel over the albs but the method of treatment by the pyridine silver method does not equal the ultimate endings. The conclusion is drawn that the intralingual area of the nail plate is a bundle of fibers of considerable size through the cribriform plate to the brain, a sympathetic chain in connection posteriorly by way of the phenolal nerve and ganglion. M. M. MILLER

**E. J. nger J. Ge. H. R. G. a. s. r. H. S. and Elliott B. L. An Experimental Study of Surgical Shock. A Preliminary Report J. t. M. i. 9 1 5 89**

The method used in producing shock were the following:

1. Exposure and manipulation of the abdominal viscera. Even at once did not hasten shock development nor did the removal of the abdominal sympathetic chain and section of the splanchnic nerves some weeks prior to the experiment.

2. Partial occlusion of the inferior vena cava.

3. Occlusion of the thoracic aorta.

4. Injection of epinephrine until the peripheral flow was almost zero.

5. Plugging the portal artery to the liver.

The authors conclude from the procedures that processes are started peripherally that eventually lead to shock, that the abdominal area scarcely more potent in shock production than other parts of the body of comparable vascularity, that the sole primary disturbance leading to shock is not the retention of blood in the veins and capillaries of the splanchnic area nor failure of the vasomotor center that the reduced pressure is to be attributed to a reduction in the effective volume of blood and that the pressure reduction is accomplished by reducing

for some time the blood supply to a considerable part of the body.

The authors develop from the above conclusions the following working hypothesis:

Continued deficient blood supply starts a more or less severe reaction possibly of the nature of an inflammation in which engorgement of the small arteries and capillaries and transudation of the plasma result in the early consequences. If acid occurs in the heart it is the result of deficient circulation in the left ventricular blood supply undoubtedly in the main. Under the influence of the low blood pressure the heart is still capable of continuing to function but does not respond so quickly to the stimulation and the respiratory center is working beyond the limit of viability.

The vasomotor center may be a reduced circulation brought about possibly by the action of parasympathetic vasomotor mechanisms together with a certain amount of hemorrhage. However, a peripheral constriction either by direct or reflex stimulation of the vasomotor center has not yet been successful in producing shock experimentally. H. J. VAN N. B. G.

**M. t. r. S. J. Some of the Unsettled Problems in Surgery J. t. M. i. 9 739**

In view of the Carrel-Dakin treatment the decision of the value of the method should be followed implicitly before making improvements and classification.

The decision on choice of the myotomy versus cholecystomy has not been settled but all agree that drainage of the hands is an important factor. A decision is reached that certain deep cases must be drained if they are to be saved. The value of the operation over the enterostomy and the value of the incision over the incision has been agreed upon. The fact that the incision in the region of the peritoneum and the continued benign ulcer at once could lead to the belief that in all cases here the ulcer has a limited period of time, even in the most advanced stage, as it is absolutely impossible to examine macroscopically all such lesions at once at the time of operation. The greater mortality from pylorotomy by the enterostomy makes many peritonitis the simple operation of gastroenterostomy.

The value of the large intestine has been a subject of useful discussion though a reasonable solution is near at hand than it was a few years ago. Cancer in the intestinal tract can be radically cured in certain cases. The results obtained in the resection of the large intestine, the removal of the stomach, cancer is far beyond what could have been hoped for a few years ago. Owing to the progress in the treatment of the disease, the decision of the choice of the method is now being

largely removed by the cautery instead of the knife with an easily good result. Semithoracic pyrolysis

given some definite results and should be tried in all cases of sarcoma inoperable or postoperative but this treatment in the more common infections is still far from being sure or upon a scientific basis. Radio active rays misused have sacrificed thousands of lives but these rays have also brought infinite relief and sometimes cure when used in proper cases and in a proper manner.

One of the most important problems is the care and rehabilitation of the vast army of men who will return from the war crippled deformed blind and disabled on account of injury exposure or poison gases. Care of the soldier will result in greater care in the treatment and subsequent training of those injured in civil life.

E I FREILICH

### SERA VACCINES AND FERMENTS

Shields C L A Complement Fixation Test for Tuberculosis *North est Med* 1917 xi 364

Shield discusses a complement fixation test for tuberculosis that he considers very valuable.

The antigen used in the test is prepared by grinding many different strains of the tubercle bacillus in sodium chloride. This detects on active antibody specific to tuberculosis. This antibody is not found in normal individuals nor in individuals with healed tuberculous lesions but only in those with active tuberculosis.

In a large series of patients the results as recorded by Miller and Zinsser showed a positive reaction in 96 per cent of all active cases and a negative reaction in all non tuberculous and normal patients. It was also negative in cases of arrested tuberculosis.

In a series of 100 serums tested by the author there were 9 positive reactions in 56 syphilitic serums and 8 known tuberculous serums gave negative results. Of 3 cases presenting no definite signs but suspected as being tuberculous 12 were positive and 11 negative.

JOHN W TURNER

Arch bald R A A Review of Some of the Later Developments Along Immunological Lines *Calif St J Med* 1917 xv 464

The article is a condensed technical review of the recent developments along immunological lines. Deductions from which the author applies to the phenomena exhibited in infectious disease. While it is admitted that the clinical manifestations of a disease are such that the source of the toxic element can frequently be designated yet the clinical symptoms of many different types of infection and toxemias are so similar that other factors which are of equal importance must not be overlooked. The toxin or toxins of an infectious organism are not solely responsible for the pathological changes seen in the tissues during the progress of an infectious disease.

The author cites tuberculosis typhoid and pneumonia as types of infectious disease characterized by great productive change or cellular proliferation.

The number of new cellular elements formed during the course of the disease may equal the number of specific organisms present. The toxins and end products of the metabolism of these newly formed cells are as much of a tax upon the patient as the toxins evolved from the bacteria.

Specific treatment therefore aimed at the production of immunity does not provide for the neutralization of the toxic end products which are the result of parenteral digestion of the individual's own serum and tissue proteins. Specific antibacterial preparations accordingly no matter how efficacious in the destruction of bacteria cannot in themselves be self sufficient in the treatment of infectious diseases.

ELLIS H CHIL

### BLOOD

Minor G R and Lee R I Treatment of Pernicious Anæmia Especially by Transfusion and Splenectomy *Boston M & S J* 1917 cxcvii 761

The authors have made a careful study of 96 cases of pernicious anemia seen in the past three years. Before discussing the treatment proper of pernicious anemia differential diagnosis blood destruction and blood formation red cell destruction bone marrow stimulation and bone marrow threshold are considered in reference to the rôle each plays in the effect of treatment.

In discussing various types of the disease the authors state that the effect of therapeutic procedures will ultimately depend upon the reserve power of the marrow and the degree of erythrocytic destruction. On account of the natural tendency to remission in true cases of pernicious anemia it is difficult to judge benefits directly attributable to therapeutic measures. The worst cases are those with marked pouring out of all marrow elements while those that are usually most affected by therapeutic measures are the types which frequently do well spontaneously.

The authors recognize the following five classes which often merge one into the other.

1 Acute cases terminating fatally in a few months with varying degrees of blood destruction.

Cases characterized by marked or fair remissions from one to fifteen in number usually with considerable hemolysis which is more marked in relapses and sometimes not abnormal during remissions.

3 Cases with a considerable degree of hemolysis chronically present with slow and never very striking remissions also except terminally without very serious relapses. This class is also usually characterized by an enlarged spleen. The condition resembles acquired hemolytic jaundice and is more favorably affected by splenectomy than by other forms of treatment.

4 Distinctly chronic cases that slowly become worse with very mild remissions.

5 Continuous chronic case that very slowly grows worse usually with no remission and associated



shock due to the initial loss of blood and to the severity of the operative measures required blood transfusion is a permanent resuscitative measure of extreme value.

If the bleeding can be controlled the ideal time is as soon as the patient is seen. If operative interference is necessary before the bleeding can be controlled blood transfusion may be carried out before the patient leaves the operating table. Clinical observations appear to show that some degenerative changes take place in the organism when the exsanguinated condition persists for more than a few hours. For this reason it is advisable to give the blood as soon as possible after admission if circumstances permit.

Other great factors in the production of shock are loss of body heat and physical exhaustion which after transfusion can be controlled with warmth and rest for a few hours before operation. Acidosis incident to the shocked condition may be treated by the administration of sodium bicarbonate.

The benefit of blood transfusions has its limitations and it should not be used indiscriminately.

The amount of blood transfused has usually been 700 to 1 000 ccm. sometimes less and at times more but the most immediate and lasting results have been obtained with the large amounts. Cardiac dilatation has not been observed.

A wounded man who has lost much blood and has a blood pressure below 90 mm. mercury is not a good subject for operation with a blood pressure below 70 mm. mercury he is in a precarious condition. In the cases of severe primary hemorrhage accompanied by shock blood transfusion frequently produces an immediate and almost incredible improvement.

The change from a pallid sometimes semiconscious patient with a rapid flickering pulse to a comparatively healthy looking conscious and comfortable patient with a slower and fuller pulse is dramatic evidence of the value of the transfused blood. In those cases in which readings were taken during the subsequent forty eight hours it was shown that the rise in blood pressure was well maintained.

The author reports 26 cases of primary hemorrhage in which transfusion was done. The results are classified as follows: life saving 22 cases immediately beneficial but died from infection or operation 9 cases no benefit 3 cases death by hemolysis 2 cases.

V. C. HUNT

#### Kritchevsky I. L. Hemolysins of Vegetable Origin. *J Exp Med* 1917 xvi 669

Kritchevsky has already reported the results of an investigation on the bacterial agglutinins precipitins bacterial and albuminous and hæmagglutinating substances found in the sap of cotyledon schiedackeri. This article deals with the hæmolysins which Kritchevsky discovered in the sap of this plant.

His experiments show that hæmolysis is observed

only in sap that contains hæmagglutinins when the cotyledon sap is deprived of hæmagglutinins it does not possess hæmolysins. Moreover hæmolysis never appears in cotyledon saps and the hæmolytic power is measured by the intensity of color of the liquid covering the erythrocytes. According to von Liebermann ricin also never gives complete hæmolysis. The experiment can be performed with ordinary test tubes but Kritchevsky used centrifuge tubes as they permitted a more rapid procedure and he submitted the suspension to centrifuging after half an hour at 37.

It has been stated that the agglutinated erythrocytes were thoroughly shaken in cotyledon sap and the agglutinated clot again furnished a homogeneous suspension at least macroscopically homogeneous. This restoration of the original suspension was necessary in order to obtain hæmolysis as was shown in one of the experiments.

Two other series of experiments led the author to the conclusion that either a definite quantity of red cells is able to bind only a quantity of hæmolysins which is insufficient for complete hæmolysis or that the red cells are so modified during the process of binding the hæmolysins by other substances contained in the sap and also by the red cells themselves that they can no longer be completely hæmolized.

He proves further that 0.5 ccm. of a 10 per cent suspension of sheep corpuscles is unable to bind the total amount of hæmolysin contained in the sap. Further experiments also confirmed the hypothesis that the same receptor formed the object of binding for the vegetable hæmolysin as well as for the hæmolytic antibody and that in consequence the two hæmolysins could not be bound with the red cells simultaneously because the hæmolysin possesses a greater avidity left no place for the other one.

From his entire series of experiments Kritchevsky was able to draw the following conclusions.

The sap of cotyledon schiedackeri possesses hæmolysins for the red corpuscles of different animals.

The hæmolysins of vegetable sap can be bound by erythrocytes and cannot be separated.

A definite quantity of erythrocytes is able to extract from the sap only a part of the hæmolysins it contains.

The quantity of hæmolysins in the sap of different plants is subjected to the same fluctuations as that of bacterial agglutinins precipitins and hæmagglutinins.

As the hæmolysins are bound by erythrocytes the hæmolysis can take place not only at 37 but also at 15 or 16.

The thermostability of the hæmolysins varies from one individual plant to another.

In many cases the vegetable sap loses its hæmolytic properties at a certain temperature and recovers them at a higher one.

The vegetable sap is unable to produce complete



haemolysis of erythrocytes but the sap of many plants acquires the power to dissolve corpuscles completely after one hour of heating at 134 and 144.

Erythrocytes modified by cotyledon sap cannot be dissolved completely even by tilted after.

The agglutination of the erythrocytes and their hemolysis are conditioned probably by different substances.

The haemolytic amboceptor and the haemolysin of cotyledon seeds heidecke can be bound with the same receptor of the erythrocyte.

C. R. & L. BEILBY

### BLOOD AND LYMPH VESSELS

Jones E. G. and Wicks C. E. Treatment of a Double Femoral Artery by Plastic Operation on the Autoplastic Flaps of the Groin.

The three partially constructed plastic anastomoses of the femoral artery with the autoplasmic flaps of the groin were ligamented from the popliteal artery to the femoral artery. The high tension of the flap at the anastomosis was maintained by the use of the high tension of the flap. The flap was then cut off the femoral artery. The flap was then cut off the femoral artery.

In the first case the flap was cut off the femoral artery. The flap was then cut off the femoral artery. The flap was then cut off the femoral artery. The flap was then cut off the femoral artery.

They also observed that the flap was cut off the femoral artery. The flap was then cut off the femoral artery. The flap was then cut off the femoral artery. The flap was then cut off the femoral artery.

### EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Bland Sutton J. M. Splenic and Mesenteric Organ.

The author describes an intrathoracic stomach presenting unusual features. A woman aged 26 complained of gastric disturbance over a two-year history of amenorrhea with X-ray and an opaque meal radiograph disclosed the shadow of a body above the diaphragm and placed the heart to the left.

The patient underwent operation. The part was exposed by a median supra-umbilical incision but no stomach was visible. A left was found in the diaphragm on the right side of the esophagus from which the small intestine emerged. The small intestine was ligated and pushed into the thorax. It was then divided and was seen to be firmly attached to the diaphragm. The small intestine was then cut off the diaphragm. The small intestine was then cut off the diaphragm.

Example of misplaced appendix undecended cecum pelvic kidney mastoid teeth and double skull regrowth.

Brook B. Studies in Bone Regeneration.

Brook has conducted a series of experiments on the regeneration of bone. These experiments show conclusively that a defect in the half of a bone may be quickly and completely regenerated after placing within the defect an autotransplant of living bone with the periosteum and endosteum.

The regeneration of bone to repair the defect or gap in the portion of the normal bone regenerating elements is the greatest achievement. He questions whether the transplanted bone material can retain the reparability for a short period of time. The identity of the transplanted bone is ultimately lost as a result of absorption and replacement by new bone.

If the periosteum and endosteum together with the adjacent layer of bone are removed from the transplant it has no osteogenic property. If an implant is inserted into the defect in the half of the bone there is no indication that such an implant develops any regeneration of the defect. The implanted bone neither results in a transplant of the bone material nor in a transplant of the bone material. The transplant of the bone material is not a transplant of the bone material.

He believes that the biological matter of question thus prevails in the periosteum and endosteum. A free bone transplant is the most important factor in determining the success of the bone transplant. He states the following reasons for his belief.

The periosteum is a protective and protective layer. The periosteum is a protective layer. The periosteum is a protective layer. The periosteum is a protective layer.

The periosteum is a protective layer. The periosteum is a protective layer. The periosteum is a protective layer. The periosteum is a protective layer.

He states that there are both external and internal factors which determine the regeneration and growth of bone. A free bone transplant. The power of a free bone transplant. The periosteum and endosteum to regenerate bone is an intrinsic property. The ability of the regenerating bone to continue the production of new bone is a function of bone is completed. Determined by external influences. He applies the term functional demand to the combination of the external influences.

He concludes his article by saying that a free bone transplant with the periosteum and endosteum is certainly the only type of implant which may be expected to be the source of new bone formation. An implant of the bone material. The bone material. The bone material. The bone material.

bone transplant varies with the age of the individual and general constitutional conditions. Results in children are more likely to be better than in old or poorly nourished individuals.

Two possibilities of devising means for increasing the osteogenic power of the transplant have been suggested.

1 The use of a transplant from another individual in which there is greater potential power of osteogenesis.

2 The possibility that the osteogenic power of the graft may be increased by causing artificial injury to the bone from which the graft is to be taken and thus causing new bone formation and subsequently transplanting the growing bone.

Experiments are now in progress to determine the value of these methods. G. W. HOCHREIN.

**Nutt J. J. Neurotization of Paralyzed Muscle by Muscle Grafting: A Laboratory and Clinical Study.** *J Am M 155 19 7 1918* 08

The idea is proposed of effecting partial return of function to muscles paralyzed by poliomyelitis by muscle grafting and consequent extension of the motor nerves from the unaffected muscular tissue.

Former operations for tendon transplantation in local paralyses give evidence that the destruction of the intermuscular septum and sarcolemma allows projection of nerve fibers from sound to paralyzed muscle and resultant restoration of function.

A laboratory report is given with illustrative sections to support this theory. The sections are obtained from cases of experimental paralysis by nerve section followed by muscle grafting and partial restoration of function subsequent sectioning showing new nerve fibers from sound to paralyzed muscle and restoration of normal histological elements of the muscle fibers.

Operative technique is described and 16 cases are cited in which 7 promise good results. Success of this procedure is more assured by early operation before all intelligence of the muscle fiber is lost.

V. L. DUDMAN

## ROENTGENOLOGY

**Montgomery D. W. and Culver G. D. The Preoperative Reduction of Epithelioma by Roentgen Rays or Radium.** *J Clin Dis 917 1918* 83

The authors regard it as an accepted principle to precede operative treatment of cancer in certain location as for example of the uterus including its cervix of the vagina of the rectum tongue and lips by a primary radiation with radium. They believe a similar procedure may be made use of in cancer of the skin to reduce the resulting scarring and deformity or to bring an inoperable lesion within the limits of eradication.

In support of this contention a case is cited of large epithelioma of the side of the nose which was inoperable when first seen but was completely

healed by roentgen radiation followed by curetting and further radiation. They think prolonged moderate irradiation is preferable to short intensive dosage and that healing induced by treatment with roentgen rays alone is deceptive. Recurrence may take place from cell rests located deeply which had not been reached. An example of such a case is given.

ADOLPH HARTUNG

**Levin I. and Joseph B. Morphologic Appearance of Cancer Clinically Cured by Radium and Roentgen Ray.** *J Im M 155 191, 1918* 1068

The authors first discuss the terms radical cure, clinical cure and improvement. A surgical statement that a cancer case is radically cured implies that the patient is alive and free from the disease from three to five years after the operation. This is a wrong conclusion however for according to the figures of Heurtaux a considerable percentage of recurrences take place after the four or five years. More correctly speaking the case mentioned above should be put under the head of clinical cures.

A clinical cure of a cancer means a gross destruction or diminution of the size of the primary tumor with disappearance of the symptoms and a state of well being continued for a sufficiently long time to preclude the possibility of a spontaneous remission of the disease.

An improvement or palliation involves the alleviation of symptoms without any inhibition of the development of the growth of the malignant tumor.

It has been definitely demonstrated that the action of radium and roentgen ray therapy is to effect a palliative or a clinical cure if not a radical cure and the fact that a radical cure is not obtained does not detract anything from the value of the method.

As to how the radiation produces its effect the general statement is made that tissues consisting of less differentiated younger cells in a state of active proliferation are most deeply influenced by the rays and that consequently there is a selective action of the rays on the actively proliferating tumor cells as compared with the normal organ cells. First there are morphologic changes noted in carcinomatous or sarcomatous tissue under radiation which are noted in the tumor cells themselves these being manifested by the vacuolation of the protoplasm, pyknosis of nuclei, karyolysis and ultimately complete necrosis of the cell. These cellular changes are accompanied by a round cell infiltration which replaced the destroyed cancer cells. Subsequently this round cell infiltration is changed into dense sclerotic connective tissue poor in blood vessels. This connective tissue formation becomes extensive surrounding islands of cancer cells and assists in the destruction of the latter. Some observers maintain that the action of the rays has been confined to the production of connective tissue and that the cancer cells are affected only secondarily the result of disturbed blood supply following the sclerosis of the new connective tissue.

The authors obtained pathologic sections from a

case of carcinoma of the sigmoid with metastatic dissemination in the peritoneum a case of carcinoma of the breast with axillary involvement an inoperable case of a melanotic cancer involving the skin in the right supraclavicular region and an adenocarcinoma of the ascending colon

In the case of carcinoma of the sigmoid the patient died from acute intestinal obstruction previous to which massive doses of roentgen rays had been given. Autopsy the peritoneum was studded with numerous white plaques. Microscopic study of a section taken through the loop of small intestine that were firmly bound together by dense bands showed that the latter consisted of thick layers of connective tissue containing occasional groups of tumor cells. During six months it was demonstrated that not a single one of the minute nodules introduced into the operation developed into a second carcinoma and the primary sigmoid tumor did not recede in size during that time.

In the case of the ileocecal carcinoma eleven months follow the beginning of the treatment with roentgen rays the patient died and a necropsy was performed. A minute search was made for possible metastases but none were found. Microscopic examination of the tumor of the cecum showed irregular cancerous nodules in the lymphatic glands of the wall infiltrated with old carcinoma. While morphologically the tumor presented no change still after a year and a half there was no evidence of dissemination. Metastases and the author concludes from this that the way to inhibit the growth of the tumor is through the roentgen rays. The carcinoma was transformed into a benignly degenerated benign type of tumor although the morphological picture was not changed.

In the case of melanotic carcinoma a year after two years and a half the patient suddenly died and no metastatic tumor had developed. The ulcer had healed and the growth although diminished in size at last finally remained stationary. The author considers that the evidence of the tumor py inhibited the proliferation of the cancer cell and arrested the growth of the tumor without producing any apparent morphological change.

A chronic inhibition was also obtained in the case of adenocarcinoma of the ascending colon. In this case the morphologic appearance was changed from an adenocarcinoma to a benign adenoma.

The conclusions are then that clinical investigations and experimental studies bear out the view that the action of adaptation of adum and roentgen rays to impair the proliferating power and consequently the malignancy of cancer cells without producing change in the morphologic appearance of the tumor. That the first action of the rays is to effect a sterilization as it were of the cancer cell. The clerosic thickening explained both by the direct action of the rays and the natural history of the cancer cell. It is imperative therefore

that every malignant tumor should be subjected to radiation both before the performance of a partial or radical operation and also following the operation.

W. A. EVANS

Hilben M. J. Th. Roentgen Rays in the Diagnosis of Gastrointestinal Disease. *Int. St. M. J.* 97 935

The clinical value of the roentgen ray in the diagnosis of gastrointestinal disease has now become fully recognized. The Mayo Clinic of Cannon of Boston first used bismuth resins in food to study the lining of the stomach of a cat and soon after the human stomach was examined in the same manner. The present method together with fluoroscopic examination gives the best results without the plate method. It is said that may escape in fluoroscopic examination.

Holknicht and his students Jona and Handek completed a series of symptoms complexes based on the following principles:

1. Nausea and vomiting
2. Stomach empty after six hours. Healed of bismuth in small intestine and colon
3. Stomach had normal
4. Nausea and vomiting. No antiperistalsis
5. No point of pressure point
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Other noteworthy symptoms reported per tails of the patient of the pylorus up and down to the left small intestine of the right curvature stable to the left on hanging transverse colon

Old contraction of the lesser curvature of the pylorus

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tion of the opaque material which has emerged through the penetrating ulcer and shows on the posterior wall or lesser curvature of the stomach in the form of a pouch. With the patient upright the opaque material has above it a gas bubble.

The hour glass deformity due to cicatricial contraction of an old ulcer must be differentiated from spasmodic hour glass and deep peristaltic contraction. Painful pressure points associated with abnormal contours are highly suggestive. The spasm due to gastric ulcer, duodenal ulcer, pancreatic involvement, cholecystitis and appendicitis must be differentiated.

Duodenal ulcer should be examined by the serial plate method. This is considered by the author to be the best method of examination for this condition. The deformities of the cap as observed roentgenologically exceed the pathological surgical findings and the supposition is that intrinsic spasms of the caput occur similar to gastric spasm associated

with gastric ulcer. The usual types of deformity show

- 1 Niche like cavities
  - 2 A small compact shadow with no regularity of contour. If due to obstructing ulcer there may be hyperperistalsis, antral dilatation and six hour residue.
  - 3 The presence of incisura
  - 4 General distortions with sharp finger like projections and incisura like indentations.
- In addition to the above direct the following indirect findings are corroborative: (a) gastric hypertonus, hyperperistalsis and hypermotility (b) six hour gastric residue (c) dilatation of antrum, pylorus (d) gastro spasm (e) duodenal diverticulum.

The essential clinical data should be correlated with the direct or inferential signs as no one method should be neglected in ascertaining a correct diagnosis.

C. B. HOLING

## MILITARY SURGERY

NOTE—Readers are referred to the Table of Contents for other articles dealing with military surgery which appear under the various headings according to our anatomical arrangement.

McKenzie R. T. The Treatment of Nerve Muscle and Joint Injuries in Soldiers by Physical Means. *Canad. Med. Ass. J.* 1917 VII 1057

The conditions to which physical therapy applies are as follows:

1 Injury to peripheral nerves all the way from the bruising of a nerve trunk to its destruction and restoration by surgical means. There is weakness or paralysis, muscular wasting and contracture. The treatment is met by the application of support to prevent overstretching of weak muscles and to prevent contracture of those that are unimpaired. Massage, electricity, passive and active motion and later gymnastic and vocational training.

2 Scar tissue may contract in such a manner as to impede the circulation and by pressure on nerves may produce severe pain. In addition to the cold clammy and cyanotic extremity, the whirlpool bath for twenty minutes changes the cold purple of a hand or leg into a warm crimson and the masseur is able to massage and manipulate that which before the bath was impossible.

3 Old septic wound are frequently persistently painful long after they have healed. Massage very frequently discovers and brings to the surface the infection in the form of a sequestrum or other foreign body.

4 In all postoperative conditions the cure must be applied by physical means. It is not enough to break down an adhesion or to restore a joint to potential usefulness. Its function must be improved and the patient must be taught to use it.

5 Functional neuroses such as paralysis, contractures, loss of sight, speech or hearing, areas of

anesthesia or hyperesthesia show many remarkable cures by systematic massage, exercise and electricity in connection with suggestion and encouragement.

6 Treatment of shell shock consists of rest and sedative treatment by the continuous bath at skin temperature and the substitution of gentle massage and electricity for active movements at first with a gradual increase of exercise.

7 Soldiers' heart is a symptom of overstrain. The pulse is rapid, there is dyspnea and the thyroid gland is enlarged. The frequency current, the sedative bath, electric massage and rest rapidly produce improvement.

8 The after treatment of sprains, fractures, rheumatism and gout consists of massage, electricity and hydrotherapy. For painful conditions such as neuritis, neuralgia or for any condition requiring active hyperemia, electricity is of value. The high frequency current used in diathermy causes a sensation of warmth and has great power of deep penetration. Radiant heat is supplied by means of electric lamps in an electric light bath in a cabinet. Heat thus produced is alternative and assists elimination. The whirlpool baths are very valuable. The arm or leg is plunged into a vessel containing water at about 10 degrees which is circulated by a propeller. Air is also introduced so that the limb is surrounded by a swirling bubbling current the temperature of which is raised to 120 degrees. These baths are especially effective for painful stumps, painful scars and for conditions which lower the circulation and nutrition of the member and when followed by active motion together with

massage judiciously applied are of great value. Various parts of the body are exercised by various forms of apparatus. Gymnastics in the form of games or sports together with occasional the application of functional training must be judiciously applied.

II KUR ULDE

Uffoltz Aborti e T eam t f Infected W unds  
(Le t tem t hot f d l nfe t n d pl s)  
A ch de ed t pl s l Pa , 6 l

The author reports 130 non selected cases of infected wound treated by the Carril method. There were 18 recoveries. These include 52 without fracture with an average treatment lasting 4 days and gaining preservation of functional integrity in 41 cases. Nineteen were fractures with an average of 57.5 days of treatment and preservation of functional integrity in 11 cases. Seven additional lesions had 44 days of treatment with functional preservation in 11 cases.

Forty-nine cases are still in course of treatment and were evacuated to other hospitals. There are 3 deaths.

Shurt histories of the oases are given with temperature u v s in the se of th mo e import ant lesions. The a s compr s all type of wound

W A BRE N LV

Shurey G O Present Methods in Military Surgery  
J 1 k 1 a M S 9 7 4

Shirley report a lecture delivered by Bernard of the Faculty of Medicine.

Due to change in the method of a fire the treatment of wound is radically different than he etofore. In the Russo Japanese War and the Balkan Wars the wound e e caused by no th bullet and no cooperative interference vi at nptel the wound we e mply d e ed and the pati nt sent to base ho pital. With the ad ent f the widely used shells p ojectiles and e ends the wounds are ragged and the e is much de str ction of tissues. Early in the war when these ca es we e left alone a la e majority of them came to the base hospitals with gas gangrene

The present practice is to do a debridement. This consists in opening the wound and removing all dead and badly mangled tissues. If the shell is easily found it is removed. Once the wound is searched it is made

It has been found that gas gangrene is most dangerous when the wound is in the calf of the leg. Next in order come the thigh, forearm and buttock.

To better understand the French hand the wounded case fell from the field. At the first aid station the injured patient was washed with pure alcohol painted with tincture of iodine and dusted with Vincent powder. The hypochlorite of lime ointment was applied to the wound. If indicated a tourniquet was applied to the limb and a tag attached to the patient's leg. Emergency treatment applied.

The case is then sent to the surgical advance station which is equipped with operating rooms and ward. If necessary a debridement is done and the patient is sent by motor to the evacuation hospital about twenty kilometers behind the front lines. From here the patient goes direct to the base hospital.

The treatment then is as follows: Nearly all wounds come from the battle of antiseptic and here either normal saline or Carrel's solution is used. Bernard reports rather favorable results from the use of Carrel's solution.

In hort operations ethyl chloride is a general anaesthetic used while in prolonged operation. Ethyl chloride Gene al anaesthesia used almost entirely.

In preparation for the operation the area is  
not tubed but is lined with ether then washed  
with Dakin solution and painted with tincture  
of iodine.

Early in the operation was not done on  
and in the filling the favorable reports  
of the treatment from the Ber War the  
K. Jayane and the Balkan War. Later the  
Murphy patterned an opening was  
made in the hypogastrium and a drain inserted.  
This procedure fulfilled there a perforation  
in the intestine.

The patient is performed if possible. In  
 the case of a general anesthesia the  
 patient is not allowed to be in the  
 operating room for the first 24 hours. For general  
 anesthesia the medical treatment should be the best  
 chance for recovery. Namely, comprehensive band  
 age, lesions, gelatin, ureum, no phine and  
 absolute rest.

In criminal case transportation is dangerous. He is full of insect and removable pressure. In fact, the killing of any compressed bone is removed by making holes in polygraph and hanging between the sagittal saw. The dura is not opened in the case of injury to the optic nerves. The patient is employed to prevent hernia or rebar.

In cases of h ck heat saline and rd enah cam  
pl n ila d t y h i e a e used Morphine also  
i u ed if our d

In case of gangrene treatment includes de  
brisement and antiseptic irrigation with Car  
bolic solution. Severe treatment in this condition  
has not proved satisfactory. I. E. B. 1100

Mott F W Tl Mic osc p Exam nation of th  
B a n s of T o M e n D d of Comm ti C b  
With out V i b l E t n l Inj y b i M J  
9 7 6

The examination of the brain for traces of death is on a bill which, without injury and without protracted hemorrhage, indicates the effect of gas poisoning. It is the first deceptively that the body can be seen in high seas.

to explain (1) sudden death in shell shock and (2) the clinical symptoms which persist for some time after the commotion of the brain in non fatal cases.

A man developed a degree of nervousness on the Somme which he never lost but was able to control for six months. Later he was in an area which was subjected to an intense bombardment during which as far as can be ascertained no gas shells were used. This lasted about four hours. Although he remarked to another man that he could not stand it much longer he did not give way until the following day twelve hours later when perhaps six shells came over.

He was not buried nor gassed. One shell burst just behind his dugout ten feet away in the morning but many must have been as near the previous day. Early symptoms were tremors and general depression. The later symptoms were coarse tremors of the limbs, crying inability to walk or to do anything. He would not answer questions very like the hysterical manifestations of melancholia. The pupils were dilated. The man was admitted to the field ambulance in the evening in a state of acute mania shouting. Keep them back keep them back. He was quite uncontrollable and impossible to examine. He was quieted with morphine and chloroform and slept well at night. The next morning he woke up apparently well and suddenly died.

The summary of the histologic changes is as follows. There was a generalized early chromatolytic change in the cells of the central nervous system.

This change varied in intensity. The cells most affected were the small cells in which the basophile substance had partly or nearly disappeared. In the larger cells the Nissl granules were smaller and not packed so closely together as normally. The small cells of the medulla and pons were slightly swollen and the nucleus large and clear. This change was present in some of the large cells but less evident. This change indicated a relative degree of exhaustion of the kinetoplasm assuming that the amount of the basophile substance is an index of biochemical neuropotential. The Nissl granules are not present in the neurone during life but they disappear altogether in a cell that prior to death of the whole body has been so injured as to decay and die. Granted this premise then it may be assumed that the cells in this case were in a state of commencing nervous exhaustion. Some nuclei of cells showed the changes more markedly than others for example the cells of the vago accessorius nucleus.

The vessels of the pia arachnoid membranes of the brain were congested and there were scattered subpial hæmorrhages of microscopic size almost everywhere.

In the white matter of the corpus callosum the internal capsule the pons and medulla there were seen congested veins and hæmorrhage into the sheaths of these vessels with occasional extravasation of blood corpuscles into the adjacent tissues.

EDWARD L. CORNELL

## GYNECOLOGY

## UTERUS

Risley E H and L land G A Jr A Repo t of  
the Teatn nt f C c nom of th Cervix at  
the H nt ngton Ho p t l f a Peri d of Fou  
Year B t M & S J 9 7 1 89

Riley report a series of 13 cases of carcinoma of the uterus treated with radium at the Huntington Hospital from January 9 to June 916

The case are classified in five groups  
Group I Case I border line operability in  
which per operative adjuvant treatment aim at a  
reduction in the size and fixation of the mass  
enhancing the chance of total extirpation  
is not likely such cases were made operable by  
radium applications making the mass removable  
Three patients are alive at present 18 months  
after operation and without symptoms one  
month after operation with recurrence of  
20 months after operation but with local cure  
Two are dead one died 6 weeks after operation  
from cause not stated one died 1 year after  
disease for 3 years after operation then recurrence  
and death took place after 4 months of radiation  
treatment

Ca e accepted fo p ophyll t e d a  
t on follo n r l l h y t e r t o m y O l l e  
such ca es e r e c o r d e d t h e a r e a l i e w t h o u t  
r e c u r r e n c e 3 m o n t h a f t e o p e r a t n e h d r e  
c u r e n c e 1 m o n t h a f t e a r d o n v a f r e f m  
d s e a s e 8 m o t h a f t e v h h t m e t h c a c o u l d  
n o t b e t r a c d f o b s e r v a t o n o n e c a e d e d o f  
r e c u r r e n c e 4 m o n t h f o l l n g t h e o p e a t n

*Group 3* Postoperative recurrence of the recurrent case  
37 recurrent after hysterectomy. Three have not  
been treated. 8 are alive and free from disease.  
are in questionable condition. 5 have had definite  
recurrence or are dead. The average duration of  
life after operation is 18 months. The beginning of radical  
treatment is 18 months.

*Gro p 4* Tho e ca e of e cu rence o cont nua  
tion followi curettage cauter at on In al  
most e ery case th e ha been ste dy prog e of  
the d sense s nce th pall ative op at on Of the 22  
ca e two were n t traced one is al e and thout  
recurrence 19 months afte beginn g radum t eat  
ment three we e lost s ght f fou are al ve afte  
an ave age of 10 months since the n tituti n of the  
radiotherapy fifteen ve dead The best results  
are obtained n ca es thoroughly cauter z d with  
all the carc omat u area removed and a cal  
crater of the cervi fo m d into h ch the r dum  
can be introduced immed ately

*Group 5* Inoperable cases where radium can only be used as a palliative measure. Of the 2

cases one has not been treated three are alive 2 months after starting radiotherapy there is an apparent retardation of the growth and general improvement in their condition 18 are dead showing a average duration of life of 9 months In the case three things can be accomplished with adjuvant chemotherapy of the haemorrhage control of the foul discharge and often relief of pain

The author advises prophylactic radiation following hysterectomy. The treatment of early recurrence offers for a patient. Late treatment offers only alleviation of symptoms. Inoperable cases are made more comfortable with probable prolongation of life. Pain should be given earlier and for a more extended period in the future. All operated cases should expect observation once a month for the first year, then in three months for the second year and at frequent intervals during the third year so that early readotherapy can be administered in cases of recurrence.

L R GOLDSM H

M Iarlene W D Ut ne F b id Notes on  
Th r Di gn Compl ation and T at  
m nt B s d on tl Observ tion of 150 Ca es  
Gl g M J g s

In the author series of cases 110 supravaginal amputation of the uterus was performed with excellent result. The mortality was 3 per cent. In an unselected group the mortality should be nil if the vessels are tied to 2 per cent. When there is any suppuration of degenerative change the mortality is high. All the deaths in this series occurred in the postoperative period and were due to infection. Lymphatic infection as performed in five cases on account of malignant new growth involving the tumor all the cases made a good recovery. Myectomy or enucleation as under taken in fifteen cases with good results. Pregnancy followed in at least one case in several of the difficult benign cases during labor. It is a general rule not to perform enucleation on tumors which may lead to live the endometrium.

The following principles should be followed in deciding between myomectomy and supravaginal amputation or total hysterectomy:

1. When the essential malignant new growth is a panhysterectomy according to the radical method should be performed.

Multiple fibroids are as a rule most effectively dealt with by supravaginal amputation of the uterus.

3 Pedunculated tumor should be treated by myomectomy

4 Infected submucous fibroid are most safely removed by vaginal myomectomy.

It may be stated as a result of surveying these 150 cases with care that

1 Fibroid tumors of the uterus are rare under thirty years of age and frequent over that age. The earliest recorded case is that of a girl thirteen years of age reported by Cavaillon.

2 All fibroid tumors need to be carefully watched as they may become a source of danger to the patient.

3 The menopause does not necessarily bring about a cure as the patient grows older these growths constitute an increasing danger.

4 The risk of malignant new growth arising in a fibroid before forty years of age is not great after that time the danger increases with each year.

5 When these tumors produce symptoms sufficient to cause the patient to consult her medical attendant surgical treatment is indicated or deep seated therapy by X rays. Palliative treatment has a distinct place but is very generally unsatisfactory. Many of the cases operated upon had previously been subjected to long periods of medical treatment and invalidism and were finally forced to have relief by surgical procedure.

6 In properly selected cases treatment by X rays gives good results.

7 Cases of small uncomplicated fibroids do not require treatment but should be medically supervised regularly.

8 Uterine fibroids predispose to sterility but do not prevent conception. If a patient is known to have had uterine fibroids prior to her pregnancy careful examination of the pelvis should be made at least one month before labor is expected. After delivery the third stage of labor must be carefully watched for a severe postpartum hemorrhage. The puerperium must be supervised with care as possible infection or degeneration of the tumor may occur. Many pregnant women with uterine fibroid have a perfectly normal labor.

9 Atrophy of the fibroid occasionally occurs after the pregnancy and puerperium are completed it is however of rare occurrence.

EDWARD L. CORNELL

Chome E. A Case of Pyometra (Sur un cas de pyométrie). *Arch mens d'obst et de gynéc*. Par 1917 v 285

Chome gives the clinical history of a case of pyometra observed in a woman of 57 years. The case from the symptoms was believed to be a degenerating fibroma and a subtotal hysterectomy was done. On making the section a large quantity of pus which had filled the uterine cavity escaped into the peritoneum. The woman recovered. The uterus showed three kind of distinct neoplasms: a first clearly cancerous, a second due to proliferation of the glandular system, the third formed of clear cells superficially developed.

The case agreed with the classical picture of pyometra. The lesion is habitually a complication of cervical cancer. In 50 cases which the author found reported there were 39 cervical cancers, 4 corpus and 2 isthmus cancers. In 2/3 cervical cancers collected by Buerkle there were 17 cases of pyometra. The cancer is usually scirrhous producing a stenosis which prevents the free flow of fluids and these consequently accumulate in the uterine cavity. The distention is facilitated owing to the fact that the uterine muscle has lost its contractility either on account of senile sclerosis or fibromatosis.

Pyometra is almost exclusively observed in the cancers of elderly women from 55 to 60 years old. Except in cancer cases pyometra is very exceptional. In young women it is occasionally found where there is a congenital malformation of the genital organs.

The presence of an obstacle at the uterine neck is not sufficient in itself to create a pyometra. Normally the secretion of the uterine mucosa is insignificant and some lesion of the mucosa must be present which causes abnormal secretion. In cases of cervical cancer infection of the uterine cavity is easily understood.

In the reported cases of pyometra the mucosa was only rarely examined. The lesions found were those of endometritis especially of the type called senile. These lesions are either glandular, interstitial or of a mixed type all being different stages of an infective process. In the author's case the histologic tissues showed hyperplastic endometritis and interstitial endometritis with atrophy and epithelial destruction.

The author thinks that pyometra is only a particular form of senile endometritis but in young women with malformation it results from suppurative hematometra.

The bacteriology of the condition has been sufficiently investigated. Streptococci, staphylococci and the colon bacillus have been found.

Diagnosis is rarely made but should be considered in cases of cancer with senile atresia of the cervix and distended uterus. W. A. BRENNAN

Stone I. S. Development and Perfection of the Interposition Operation for Prolapse of the Uterus and Bladder. *Tr South Surg Soc*. St Augustine 1917 Dec.

The author states that the operation is a result of the split flap method of Arx and Sangar who made a longitudinal incision through the anterior vaginal wall and separated the bladder from it and the anterior wall of the uterus in the treatment of cystocele. Then came the various methods of Freund, Wertheim and Mackenrodt. The latter called his method vaginofixation which was successfully used to overcome retroversion of the uterus.

The methods of Freund and Wertheim involved turning the uterus out into the vagina and fixing



th or an p rmanently i t h t position This object on ble procedur a p omptly followed by the m thod of bl dder elevat on upon the uterus and fixat on of th uterus to the ent r len th of the upper ind out r surf ce of th ant rior vaginal wall imm dately upon the form r te of th bladde This operation v s e plot d by several continen l surgeons each of whom claim d prior ity but it s ab of telv certain that Duhrss n and Schauta n Cerma v and Au tra r spe t icly and Watkins n Ameri a re nflu d by tho op ratio s v h introdu ed vaginal fixation of the ut us although they have or sho ld hav the credit of d veloping perf ctng and urmly stablishing an op rton l i h h s p o d th mo t rcl bl of all vaginal methods of tre ting prolapse of th ut r s and bladder

### EXTERNAL GENITALIA

Bert n A Ob t r t r i f v s co h n al f tula and Ur t ro g i f i f i s tula R d l T e tment by Uret rocystost my (f i l a g i l n t l t b l t t h e d a i et o t t m ) l d t t g M l o 7 l 4

The patient n Be t n o s case a primipa a t v n t y o year of ag The f tula v ere due to forcep m nipulat ons the pat ent having a c n tracted pel i The c i tence f t o h tula of this kind rare and not u ally ec ied the ves covaginal f tula be ng m eas ly ac e sible the second f t l i n t bser ed and n ly f und v hen later t ouble ar e In th s c e th diag i of the d uble f tula a n t mrd and a the fistul us l f u r n cont n u d after t eatm nt of the i covaginal f i tula the uth w i bled to p o eed t a e c n d n t e n

Of the a ou ope t v e m e u for the treat ment of u terovaginal f i tula the auth r dec de l on a m ied oute of ppro ch n a m e l n t ext ape itoneal hop ng t be abl to v id the danger of pollut ng the peritoneum by te m i ating the operat n vtr pe itoneally This h ppened The te hnique a e y m i lar t th t of Stoe kel d l f e ng only in the fact th n t l e c a e repo ted by the a f l or the u ther v a s l n d quite extra pe itoneally

The meth d as al o me hat m i lar to that of Leveue h foll ed the c u r e f the ur t r th ough the pe itoneum clo d the perit n l e a ity and looked for t e m i nat on upper to ell p r ceeding from above do n a d ath th n f o m below up a d n the autlo e l na to moss of the u te to th bladder in this ca e a by d e c t u t e

There wa s m e t uble due to suppu ti n in the po toperat i pe i d The pat nt b e r reco r d and the final result wa sat s f ctory a re ar d the funct onng of the ana t mo d u e t e r a d the i m ary c p c t y of the pat ent

W A BRE X

Le n d V N F b o d Tumo s of tl Vulva B l l J l s H p k H p o 7 i 373

Fibroid tumors of the vulva although rather u common are by fa the most f equent of the benign solid neoplasms found n thi ree on and an idea of th e f equen y may be gathe ed from the fa t that but 6 case appeared among 23 000 gynecal adm sions to the J hns Hopk ns Ho pital

The tumor u ally apper ed fir t as a small firm paine dul immediately beneath the skin of the lab um m ju It gr th n some cases was ext a rd n s ly rag d nd the tumor u ally soon beca n p duncul tel G o v th c n t r u e d and actu l n t e r f e n c e v i th locomot on was likely to be the hr t n c o n v e n i e n t e p e r e n c e d by the pat e n t

Wlen een by the su ge n the e tumor s have in m t a e d e v e l o p e d a ell m r k e l p e d i c l e and han ng l t e e n the th g p r e n t a e m a r k a b l e p u r t u r e The upper u r n i c e of the tumor and the k i t the p e d c l e m b e r e l l y h a r t The k n c e i t h e t m i g e n e r a l l t h c k and t h r w a n t n u m e u h h l f i l l n l r i n k l e at o n c e g g t i g the k n f i t e r o t u m The k i n i s f e c l y m a t t l e o r the t u n and its s u r f c e i u a l l y q u i t e u b k n O n t r i p a t i n a f i r m s m o o t h o l l t l y l u l u l a t a n a d e o u t h c h i q u i t e n e n t i t o m d e t e r e u r e O n e o r m o e p u l t g v e e l s m v i e f e l t n the p e l c l e O n p u l l i n g the t m i t h r t m a k h t e n s o n o n the p e d i c l e a t u g h i b u i n v i e t e m e b m a d e o u t t r e n g the p d l l e n t e r n g the n g u i n a l c a r l

A t h t m g the r u l t a n m a y b e m p l i n i t h c g t h l c o m o l e m a t o u and e m l l u t u n t o p u l p a t i The w r k l e and f o l d s n t h k i t h e n l p p r a the u r f c e of the tumor b e e m t h a i d h a n l u l e r a t n s c m m n l y p r a t h c m t d e p e n d t p r t o n In m a n y c a t h e t n d e g j u t h e c h n g e s d u r i n m e n t r u t n T h t m r m y s e l l t o w c e t s e d u i g l t n s t r u l p i d b e c o m e o f t a d q u i t e e t i n l p l l y a u m e i t s f r m e z i d b r m n i t e n v a l l t e i s c n t e e s o o n a t t h c e r t f n e t u a t i n S h u l d p r e g n n c y u t l e t n u u l l y h the s a m e c h a n l u t i l l i n m v t k e o n a e r y r a p i d g r t l

The auth r p l r f i c h i c a l h i t r y f e a c h i t h e c a d r i e s t h p e t o n w h c h a p e r f o m d and g v a i m m r y i t h e g o a d m i r c p i c a m n n f the p e c i m e n r e m o v e d F n t u f i t l e a n d a r e i e v o f the l i t e r t r h m k t h f l l i n g m m r y

I t r i l t u m r f i t h e l v a r t h c o m m e t f i t h b n g l i t i m r f t h e g i n and g r o w t o l a r g e r e t h n s u p e r i a l i b o d t m n a n y o t h p a t o f the b v l s a u l e t h e y g r a p i d l y a n l n b e c m p e d u n c u i t d and m o t o f t h e m h m f o m f l e g e e a t c h r g

The b p e t e n l f b r m a t a h c h t l e o r g n i n t h p e l c n n e t e t s u e a d g r o n g l o n g l n e o f l e a t e t n c e t r t a p p a r a t the v l a

are the largest tumors on record. The largest tumor ever described was one of this type which weighed 68 pounds.

Excluding the subperitoneal group, the author believes it may be said roughly that two thirds of the fibroids of the vulva originate in the subcutaneous connective tissue and one third in the extraperitoneal portion of the round ligament while nearly one fifth of them become sarcomatous.

The vascular change accompanying menstruation and pregnancy are shared by these tumors and exert a marked influence upon them as is clearly shown by their swelling and sensitiveness under these circumstances. Herein he believes lies the explanation of the fact that almost without exception they occur in the child bearing period that they grow rapidly that they usually show degenerative changes and finally that a remarkably large percentage of them become sarcomatous.

GEORGE E. BEILBY

**Maclure** Intense Vulvovaginal Pruritis Treated by Resection of the Perineal Nerves (Prurit vulvo-vaginal intensif traité par la résection des nerfs périméaux) *Ann de gynec et d'obst* Par 1917 LXXI 655

Maclure says that when medical treatment fails and pruritis continues to be intense, nerve resection gives good results. He reports a case in a woman of thirty-four years. On the right he exposed the internal pudic nerve at its emergence from the pelvis. A second incision along the ascending branch of the ischium exposed the superior perineal or clitoridean branch nerve. This he resected for about 3 cm. from its origin behind the transverse perineal muscle. Similarly on the left side he exposed and resected about 3 cm. of the inferior perineal branch nerve. Recovery of the patient was normal. The intense pruritis has disappeared but there is still some hyperæsthesia which the author considers due to the fact that all the sensory vulvar nerves have not been sectioned.

The author reviews the various methods of treating pruritis and gives an anatomical description of the various nerves supplying the region. Of all treatments for intense pruritis he thinks that resection of the superficial perineal nerves and the genital branches of the abdominogenital branch nerves the best, or at least the first step in surgical treatment. In his own case he resected only the genital nerve branches deeply on one side and superficially on the other; this resulted in recovery. He did not wish to completely anesthetize the vulva

by sectioning the abdominogenital branches through fear of occasioning cutaneous trophic disturbance.

W. A. BRENNAN

## MISCELLANEOUS

**Watkins T. J.** Cystocele Uterine Inversion Retroflexion and Rectocele Repaired by Plastic Operation upon the Broad Ligaments and Vagina. Fixation of the Round Ligaments and Advancement of the Anterior Vaginal Wall. *Perineorrhaphy* S. 16, *Chicag* 1911 1021

The condition is typical as a result of injury at labor especially in the case of instrumental delivery. An inverted T shaped incision is made; the vagina is separated from the bladder by blunt dissection with the Mayo scissors and the dissection is carried on to the base of the urethra. The vaginal flap is incised in the median line to the urethra and the hypertrophied mucosa over the body of the urethra is excised.

The bladder is then separated from the cervix and uterus by blunt dissection with the Mayo scissors up to the vesico uterine fold of peritoneum. The base of the broad ligament is clamped on either side with long forceps and the portion of the broad ligament between the forceps and the cervix is incised. These ends are later to be sewn in front of the cervix. The peritoneum is incised and the uterus is delivered by successively applied forceps. The round ligament on either side is grasped about one and a half inches from its attachment to the uterus and is held with Allis forceps.

The body of the uterus is next replaced in the abdominal cavity and at a certain distance from the uterus each round ligament is fixed to the submucous connective tissue as low down in the vaginal incision as possible so that when the sutures are tied the urethra will be drawn upward in relative fixation.

After the redundant areas of the vaginal flaps are cut away, sutures are passed through the margin of the flap near the base of the urethra, through the body of the uterus above the vesico uterine peritoneal area and then through the corresponding edge of the vaginal flap on the other side. The second suture is passed parallel to this and about one fourth of an inch distant.

The rest of the vaginal wound is closed with several No. 1 catgut sutures which are also passed through the anterior wall of the cervix. The anterior lip of the cervix is excised by a V shaped incision. The cut ends of the broad ligaments are united in front of the cervix. The operation is completed by a perineorrhaphy.

S. W. BANDLER

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Hess J H The Diagnosis of the Age of the Fetus by the Use of Roentgenograms 1 J D Cid 9 32

A commendable painstaking study of a subject is given which is often of practical importance in pediatrics as to the possibility of prolonging the life of the prematurely born infant at the expense of treatment and feeding in medicolegal questions and of paramount importance when only parts of the fetus are available. A review is given of the literature as to the time of conception and as to length of the measurement and weight as related to the age of the fetus.

This study based upon the roentgenographic study of 55 malocclusions the age determined from the history of menstruation and pregnancy and from measurements.

By roentgenography the first centers are visible in the clavicles and mandible in the seventh week and from that time the appearance of new centers is rapid. Further reference is given in detail the appearance of the center.

Hess has compared the process of ossification observed in the roentgenograms of the fetuses studied with the roentgenographic studies of Alexander Baden and Lambert and found that the time of appearance of the center of ossification agrees in general there being minor differences only.

Mall has used a parent specimen of embryo and fetuses was able to demonstrate the main centers of ossification generally about one week earlier than they are demonstrable by roentgenograms. This observation also agrees with textbooks of anatomy which place the time of appearance of various centers about one week ahead of the time at which the centers cast shadows in roentgenograms large enough to be visible.

There are several variations in the normal process of ossification and it is also influenced by pathological conditions of the mother and of the fetus. For example syphilis, infection, etc. imperfectly etc. In general these pathological processes may be diagnosed in the roentgenograms.

In spite of variations the process of ossification seems to be more constant for a particular age than the length of the fetus. Mall in his article on ossification in embryos up to one hundred days old concludes that the remarkable regularity of the appearance of the bones make of them the best index of the size and of the age of the embryo which we now possess.

In the first half of pregnancy the estimation of the

age of the fetus may be made with greater accuracy because many more new centers appear in the first month and also because the time of appearance of the earliest centers is more constant. In later months centers of the lower part of the skeleton mostly are available for study and these are less constant in the time of the appearance.

In studying the roentgenogram it is well to use a reading glass of about four inches in diameter since the center of fixation may be so small as to be easily overlooked when sought for with the naked eye.

If only one exposure of the fetus is made then the best position to have many ossification centers as possible is as follows. The back lying flat on the plate the head turned completely to one side so that the side of the head lies on the plate and lateral exposure is obtained. It should be remembered in the study of the skull that both halves of the skull are usually visible. A thumb and finger should be extended and the fingers spread as far as possible from one another. One hand should be positioned and the other supinated. The legs should also be extended and the feet put into such a position that all metatarsals and phalanges are shown.

D W P B O T N

Jung F The Treatment of Eclampsia D I H 1 1 0 7 1 N 8

Jung thinks that the majority of cases of eclampsia call for hospital rather than home treatment. The proportion of such patients all for special precautions. In order to reduce the irritability of the central nervous system an injection of 2 cc of grams of morphine should be made before removal. Precaution to protect the patient from injury in the event of a possible convulsive attack must be observed. Large pieces of rubber should be placed between the teeth and the patient during transportation should be in the charge of a competent nurse.

The procedure followed by the author's clinic in Gottigen in the case of eclamptic patients is described.

If the patient is in term and the labor so far advanced that no major intervention is necessary it is terminated by the forceps or by vacuum under ether narcosis. If the labor is not sufficiently advanced a once vaginal catheter is dropped.

If more than a few hours elapse since the first morphine injection another injection of 1 cc of morphine is given a second hour later. 5 gm of chloralhydrate is administered as an emulsion. If no previous narcotic has been administered 15 cc of ganoff's prescription is followed.

At the beginning of the treatment the

about 400 to 500 ccm of blood is made from the elbow veins and followed by an injection of 500 ccm of normal saline solution. Jung thinks that both procedures are indicated in every case if the pulse is small and frequent and the blood pressure is not increased. But if the blood pressure is very low and the pulse high he omits the blood letting and confines himself to a salt or Ringer solution injection. Such treatment will cause a disappearance of the eclampsia and permit the pregnancy to proceed.

There may be a recurrence however and if so the author thinks that operative termination of the pregnancy is indicated. Jung has objections to most methods of intervention and advises only two abdominal cesarean section, transperitoneal or extraperitoneal and colpohysterectomy. He prefers the abdominal section especially when there is a contracted pelvis.

The author thinks there is special need for observation of the heart action in eclamptic patients. Even after cessation of the convulsive symptoms a diminution of cardiac activity shows a progressive intoxication. Likewise the kidneys should be observed as eclampsia is rarely unaccompanied by albuminuria. The best treatment for the renal symptoms during the convulsive period is to preserve the power of the heart. Digitalin or diuretin can be administered subcutaneously. With the passing of the acute stage the nephritis usually clears up.

The author deals in detail with the complications which may arise from eclampsia. W. A. BRENNAN.

#### Hamilton J. A. G. The Symptoms, Prophylaxis and Treatment of Toxæmia of Pregnancy. *Med J Austr* 1, 117, 43.

After urging the necessity of prenatal clinics and proper maternity hospitals, Hamilton divides the toxæmia of pregnancy into (1) pre-eclamptic toxæmia, (2) eclampsia, (3) toxæmic vomiting of pregnancy, (4) acute yellow atrophy of the liver.

The pre-eclamptic toxæmia is manifested by disturbances in the urinary, circulatory, nervous and digestive systems. Frequent albuminuria during pregnancy is of significance and unless otherwise accounted for should be regarded as toxæmic. In doubtful cases it may be necessary to examine a catheterized specimen. The quantity is usually markedly reduced. It occurs during the latter part of pregnancy in contradistinction to nephritis which if present usually manifests itself in the earlier months.

Oedema, especially if it extends to the upper extremities and eyelids and if marked in the legs as well as generally is evidence of profound toxæmia. Blood pressure of 160 or over and high tension pulse are suggestive symptoms. Headache when continuous and severe is a bad omen. Nervousness, irritability, insomnia, twitching and ocular disturbances are of significance particularly the eye symptoms. Nausea and vomiting in the latter months of pregnancy as well as any gastric or

abdominal pain not connected with uterine contractions are to be regarded with suspicion.

Severe epigastric pain like the gastric crisis of locomotor ataxia may occur as a prodromal symptom. In order to prevent eclampsia treatment should be instituted at the earliest manifestation of symptoms. Patients with albuminuria should be strictly confined to bed put on a milk diet given large quantities of water and grammes of pulverized jalapa or 4 grammes of magnesium sulphate every hour until free purgation is produced. Colonic irrigations with hot saline solutions and diuretics in the form of digitals or diuretin may be given. Elimination by the skin should be encouraged by daily hot baths and if symptoms threaten a hot pack is of value.

During eclampsia the patient should be put in a quiet darkened room as any sudden noise or light may bring on a convulsion. While necessary preparations for delivery are being made morphine should be given and oxygen administered especially during convulsions. A nurse should guard the patient and either a piece of wood or a folded towel never a cork should be inserted between the teeth. After the morphine has taken effect hot packs should be given and elimination by the bowels and kidneys encouraged. The stomach washed out and 30 ccm of castor oil or 30 grammes of magnesium sulphate dissolved in water poured in and left in the stomach.

Early operative delivery gives the best results. As to the use of drugs morphine in 0.015 gramme doses repeated sufficiently often to keep the patient in a quiet sleep gives satisfactory results. The author saw two fatalities from larger doses 0.03 gm.

Chloral hydrate can be given in 6 gm doses per rectum repeated when necessary as this drug is well tolerated. Veratrine is useful in cases of high tension. The full dose is 1 ccm but 0.5 ccm is safer. It should only be used in plethoric cases and very cautiously if operative procedure is to be resorted to. Venesection was used before veratrine came into use.

Thyroid extract has been used by some with good results. The author finds it useful as a diuretic in the pre-eclamptic state in a few cases. Pilocarpine is a dangerous drug.

Chloroform produces lesions of the liver and kidney and should be avoided. For anaesthesia ether or ether oxygen should be used. Renal decapsulation is risky on account of the general poor condition of the patient who is unable to stand the lengthy operation. Lumbar puncture has been reported to relieve the convulsions but not to combat the toxæmia. Oxygen has been advocated by Shears as a good supplement to the usual treatment.

The author describes various methods of treating eclampsia detailing the one followed at the Rotunda and comes to the conclusion that the radical treatment must often be resorted to. It gives the lowest mortality. He prefers the rapid method under

anæsthesia i.e. the vaginal or abdominal cesarean section. In multiparae the vaginal operation is that of choice while in primiparae with a narrow vagina the abdominal is best. The danger of sepsis and mortality is greatest when preliminary vaginal amniotomy has been made. In such cases it is best to do the vaginal operation. Desperate cases can be saved by the rapid method. The detailed technique of the vaginal cesarean as elaborated by the author is given as performed in 2 cases with only one followed by a vesicovaginal fistula. The vesicovaginal fistula with no proper instruments at hand.

Tovæm or as it has been unscientifically all primary vomiting is a manifestation of the vomiting and the best remedy is to treat the vomiting in the early stage of the disease.

His report favors results in 3 out of 36 cases treated by intramuscular injections of cocaine. The cataplasm of cocaine does not have been tried. But in the case of cocaine, the patient is not acutely disturbed by progress of the disease and the mild and mild treatment of the disease is the best. The patient is not disturbed by the treatment of the disease. The patient is not disturbed by the treatment of the disease.

I have predicted the possibility of the development of the disease. More than half of the cases reported have been in the primary stage of the disease. The patient is not disturbed by the treatment of the disease. The patient is not disturbed by the treatment of the disease. The patient is not disturbed by the treatment of the disease.

Jefferson J. C. The Technique of Cesarean Section. Philadelphia, L. N. D. 56

The operation is a non-infected case. I covered the two complete layers of sterile baste to the abdominal incision is completed and the peritoneum opened thick Turkish to the edge is clamped to its edges. One centimeter of primary extra-thoracic hypodermically. The uterus is incised and it lies in the abdominal cavity and its contents rapidly extracted. The organ is then lifted out of the uterus and grasped firmly around its base by an assistant while the interior is carefully wiped out with dry gauze in order to remove any shred of placental membranes which may have been left.

Next comes an essential step in the operation namely stretching the cervical canal in order to provide a free outlet for the fetus. This is done by the use of the fingers of the left hand down the canal until the tips have passed through the external os into the vagina. They are now separated so as to stretch the os and rapidly withdrawn. Great care is taken now to draw them that they come in contact as little as possible with the internal surface of the uterus and not at all with the edges

of its mouth or with the towels. The gloves are then immediately taken off, the hands re-sterilized and fresh gloves put on.

The uterine incision is closed with interrupted catgut sutures and the organ dropped back into the abdominal cavity. Next the upper layer of towels and baste is removed leaving exposed the clean unsoiled lower layer. The peritoneal cavity is sealed out the omentum drawn down in front of the uterus and the abdominal incision closed.

The main difference in the procedure employed in the possibly infected cases is that the uterus is at the outset lifted out of the abdominal cavity and it is inter-scrubbed out with iodine after emptying the gloves are changed twice once just prior to closing the uterine incision and again after removing the soiled upper layer of towels before dealing with the omentum and the abdominal wound. L. R. D. L. COR. E. L.

C. O. Land G. W. K. A Case of Cesarean Section Complicated by Rupture of the Uterus. Boston, Mass. 9, 79

Cesarean section as performed on the patient aged 6 in April 1914 when she was delivered of a dead child.

She again became pregnant and labor commenced the pains were not severe. After admission to the infirmary she had only three strong pains. The abdomen was rather tender but no uterine contraction could be felt. The temperature was normal, pulse 90 and the weight no signs of collapse. On vaginal examination on the head was present but had not entered the pelvis as was patulous but not much dilated.

All attempts to dilate the uterus being normal in appearance except that across the lower third the fetal head was a large subperitoneal hematoma extending to both broad ligaments. On opening the uterus toward the fundus as soon as the knife reached the edge of the hematoma it encountered a large circular rent in the middle line of the organ about three inches in diameter obviously a subperitoneal rupture of the uterus through the lower part of the scar left by the former operation. The living child and placenta were easily delivered.

The incision in the uterus was sutured as best it could be the rupture not being closed very effectively owing to the infiltration and lacerated edges. A large rubber tube was passed through the cervix and left until morning to obviate any distention of the uterus through blood. The patient made an uneventful convalescence. V. C. HUNT

D. R. N. W. E. The Treatment of Septic Abortion. London, Mass. 9, 1906

The paper is based upon 466 cases in the author's experience at the Atlantic City Hospital during 8 deaths. The author believes that in the presence of an abortion the safest course of action is to cure it at once unless one can be sure that the uterus is empty.

The usual routine in the author's clinic if pregnancy is more than three months and the infection not of a virulent type is to do vaginal caesarean section using the gloved finger to remove the uterine contents. If three months or under the cervix is rapidly dilated and the contents of the uterus are gently removed with small placenta forceps. This may be supplemented by gentle curettage with a broad base curette which does not cut but does scrape off the tissue from the uterine cavity. There is no danger in using the sharp curette when most of the mass of tissue has been removed if it is used with skill and gentleness.

If the cervix is fully dilated soft gauze wound about a pair of dressing forceps or the finger furnishes an admirable method of freeing the cavity of the uterus of its contents without doing harm thus making unnecessary the use of hard steel instruments and creating less trauma. The uterus is then thoroughly swabbed out with equal parts of carbolic acid and solution of iodine the excess being taken up with alcohol. A small strip of iodoform gauze is then passed to the fundus and left in for drainage for twenty-four hours. Tight packing is only resorted to if the hemorrhage is excessive and the uterus very flabby it provides something to contract upon.

Some severe streptococcal cases when seen very early can be saved by a vigorous injection of anti streptococcal serum. P. G. SKILLERN JR.

Logan J. C. A Case of Superfoetation. *J. M. 155*  
*Ga. 1917 VII 158*

The patient a girl of 16 was delivered with difficulty of a transverse presentation. The first child weighed five and three-fourths pounds. The second was about ten and one-half inches long and weighed with the placenta about seventeen ounces. The head was somewhat out of proportion to the body and the face presented a wrinkled or senile appearance. It had every evidence of being a normal five and one-half months fetus. There was nothing abnormal in the appearance of the placenta.

There was no mummification maceration or putrefactive changes in the small fetus such as might be found in twin pregnancy where one fetus dies and is retained in the uterus until its mate reaches full term.

The uterus was not bicornate or bilobular.

EDWARD L. CORNELL

Miller H. A. Pyelitis Complicating Pregnancy.  
*Penn. M. J. 1917 XXI 145*

Pyelitis occurs with sufficient frequency in pregnant women to warrant its consideration where symptoms suggestive of its presence are found. In mild cases large doses of urotropine may be given. Free drainage of the kidney is essential and this may be obtained at times by posture but in the majority of cases by inserting an ureteral catheter. At times when the kidney and ureter are draining

freely it may be necessary to permit the catheter to remain some days or weeks. In no instance as demonstrated by the cases in point has the prolonged retention of the catheter resulted in harm to the patient. In cases where the kidney substance has not been involved this is followed by relief and many times by a cure.

## LABOR AND ITS COMPLICATIONS

Vivian M. Observations on Painless Childbirth with Notes on Fifty Consecutive Cases Treated by the Hyoscine and Morphine Method.  
*Brit. M. J. 1917 II 760*

Observations on painless childbirth were made upon 50 consecutive cases by the author with the following deductions:

1. It is not absolutely necessary as is usually supposed for one to remain with the patient after the first dose of morphine and hyoscine is given for by adhering to a fixed dosage and giving an initial large dose of morphine gr. 2-3 and scopolamine gr. 1-100 followed every two hours by scopolamine gr. 1-100 provided the pains continue strong and regular equally good success may be obtained.

2. A trained nurse is perfectly competent in the vast majority of cases to oversee a case of morphine scopolamine labor.

3. The duration of labor is prolonged only to a minor degree and should not be offered as an objection to the method.

4. A quiet dark room with the least possible disturbance to the patient adds to the success of the narcosis.

5. The effect of the drugs passes off quickly and the patients do not show the usual shock of labor.

Of the 50 twilight cases reported by the author 30 were absolutely successful. Fourteen were restless but did not remember anything of their labor neither did they show signs of exhaustion. There were 3 absolute failures and 3 multiparae whose labors were so rapid that only one injection was made the labor having terminated before analgesia or amnesia was established.

Of the 50 babies 49 are alive and well. The remaining one was premature and still born. Nine were born blue but only 3 of these required resuscitation the remaining 6 breathed without undue manipulation. H. B. MATTHEWS

Potts W. A. Notes on Painless Childbirth. *B. M. J. 1917 I 758*

The author calls attention to the fact that the great bugbear in the administration of morphine and scopolamine for the relief of pain incident to childbirth has been an asphyxiated or stillborn child. At the present time with a more perfect knowledge of the mode of giving the drugs no such fear should be entertained. When such accidents do occur provided there does not exist any obstetric abnormality that would have produced deep asphyxia or death the blame may well

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## PUERPERIUM AND ITS COMPLICATIONS

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J o 69

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## MISCELLANEOUS

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A p l 7 s h e h d n n t u m e n t a l d e l v e r y a d m a d e  
a n u e e n t f u l r c o e r y

When first seen the systolic pressure was 140 which was reduced to 125 but in the last month rose again to 153 with a diastolic pressure of 100 notwithstanding a change in diet and a total absence of glycosuria. The pressure rose a little higher following labor and did not begin to fall again until the action of a saline laxative.

The second case was a secundipara aged 7. Her first child born prematurely and precipitately weighed 5 pounds at birth but lived. Her urine was not examined at that pregnancy.

On January her urine contained some albumin but was free from it on the 8th. March 28 it contained 1 per cent of glucose with acetone however she had been eating somewhat freely of candy. On the 29th there was neither sugar nor acetone.

April 2 she was purposely given a few peppermint creams in the morning. Her afternoon's urine contained four tenths per cent sugar but no acid. The following morning her urine was sugar free. She had apparently a tolerance of carbohydrates and sweets in limited amounts. She complained of dryness of her hands and passed about three pints of urine daily. Blood pressure was 120 to 170.

On April 22 after two expulsive pains she was delivered of a 6 3/8 pound boy.

EDWARD L. CORNELL

#### Young J. Van D. Birth Trauma. *Illustrated*

S. G. 10. 22. 3.

Young states that birth trauma of various degree is caused in two ways, by rupture or tearing of the soft parts beyond their elastic limit by a pressure necrosis of the soft parts against the bony pelvis or a combination of both factors. The former is not under the control of the obstetrician the latter is partially especially in forceps delivery. As causative agents of birth trauma may be mentioned pelvic deformities and the age of the patient. The least favorable ages are after thirty five or before twenty years.

Uterine rupture is favored by dystocia, abnormalities of the foetus, hydramnion, rigid os, tumors, carcinoma and postoperative scars in the uterine wall. Cervical lacerations are increased in ratio by postinflammatory degeneration of the cervix, fibrous degeneration or a conical cervix. Tears of the vagina are due to congenitally small vaginae and vaginal constrictions usually found in the upper third. A fibrous hymen favors tearing at the introitus. Rapid or very prolonged labor with local

pressure favors lacerations. Forceps and especially high forceps produce the greatest trauma and the author's opinion is that cesarean section is the operation of choice in cases requiring high forceps deliveries. Version increases the number of lacerations.

Emergency work should be eliminated as much as possible from obstetrical practice and the patient should be under medical observation from the earliest possible date of pregnancy. By carefully observing the condition of the patient every two weeks during gestation the cases can be divided into four classes: normal, delayed, forceps and cesarean section.

Delivery in a hospital insures the best care of the patient. During delivery an operating or home table should be used. The dorsal position is preferable. Nitrous oxide anesthesia shortens the first stage and leaves the patient less exhausted with a consequent increase of muscular elasticity and lessened liability to injury. Pituitrin helps by decreasing the percentage of forceps deliveries. Cases liable to uterine rupture must be operated upon promptly, cesarean being best. The use of bags and manual dilatation will often conquer a rigid cervix and allow the head to come through without injury.

Vaginal tears are unpreventable but should be recognized and repaired. Laceration of the pelvic floor can possibly be minimized by keeping the occiput well up under the symphysis. Rupture of the vaginal wall as a rule does not injure either the bladder or rectum but may be accompanied by perforation of either organ.

In perineal injuries an exact knowledge of the correlation of the pelvic organs, their support, musculature and the fascial planes is very important in order to restore them properly. The author makes the strongest possible plea for the same team work in obstetrics as is now common in operative work.

Inspection and repair of trauma should be done after the delivery of the placenta. All blood clots and placental tissue must be thoroughly cleared out and the uterus kept firm by manipulation and hypodermic administrations of ergot. The author describes various operations for repairs, protesting against massed sutures and emphasizing the vital importance of reconstructive surgery founded on exact knowledge of the structures injured. The article is illustrated with pictures of lacerations.

L. P. GOLDSMITH



# GENITO URINARY SURGERY

## KIDNEY AND URETER

**Caldn H E W R entgeno ph c E minat ons**  
**of the Ur nary T t Re e of S ri of**  
**About 500 Cas s J t M 4 o 7 l 48**

In 455 cases complete record of the roentgenographic examinations were made. Of the 455 reported in 1906 cases in which the pre- and post-operative calculations were compared and in which the error was up to 10% the results were reported as follows: The total number of calculi reported as follows:

Of the 455 calculi cases the diagnosis was proved correct in the majority or by the passage of calculi. In 14 cases the calculi were proved to be correct. Of the doubtful cases calculi have been demonstrated by percutaneous cases and by passing of a tube into the case.

Of the 34 cases in which the roentgenographic examinations were reported negative for calculi stones have been subsequently proved in 5 cases. In case stones were demonstrated by percutaneous cases proved to be in the renal pelvis, report a percentage of about 5% of error. H A K A

**Add s T The R to Betw n the Ur Content**  
**of the U r n and of the Bl od Aftr the Adm n**  
**st at n f La g Quant ti f U ea J t l**  
**9 63**

In report based on percutaneous and clinical work and upon a review of the literature Addis has done much to work out the relationship between the urea content of the urine and of the blood after the administration of a large quantity of urea.

The author's method of his work follows:  
 1. The ratio between the content of the urine and of the blood pressure then multiplied times by which the urea content of the urine divided by a certain period of time equals the amount of urea present in the concentration of the blood samples taken to the kidney during this time. It is the ratio between the amount of work of the kidney and of the amount of work the kidney is called on to perform.

2. Ratios measured over a period of twenty-four hours are constant in normal individuals who have the same blood urea concentration. The normal kidney is therefore not characterized by any intrinsic tendency toward a fixed ability of function. Variations in kidney function are a function of the environment rather than an intrinsic structure of the kidney.

3. Ratio measured over short periods of time vary widely although the blood concentration at the beginning of the variation is the same. The variation in itself is due to short

livid alterations in concentration which counterbalance another elevation but not over short time intervals so that in the case of such anatomical differences a marked difference between the kidneys of young healthy adults does not play any appreciable part in the problem.

4. Differs in the concentration of urea in the tissue of the kidney of the variability in the ratio of the blood pressure of the kidney.

For the sake of the supposition that the ratio is derived from such alterations in the amount of the renal excretion brought to the kidney, the difference in the ratio of the blood through the kidney is a function of the variability of the supply between a minimum and a maximum. However, the relationship to the ratio but it does not follow that the actual amount of the blood flow is the same.

It is possible to measure the ratio by the substitution of a demonstration of renal and to determine the proportion in the hypothesis advanced that the ratio of the ratio of the ratio for one hour per unit of the blood urea concentration may be due to alterations in the endogenous pituitary balance in the blood.

It is also noted that the magnitude of the ratio is related to the rise in the blood urea concentration. In other words the kidney responds to all for more work by an increase in output which is greater than the increase in demand.

It is further shown that the relative variability of the ratio at different levels of blood urea concentration decreases the higher that levels. In other words the greater the demand for work the more constant does the ratio of work of the kidney become.

Both of these phenomena may be brought into relation with the hypothesis of a regulation of the kidney by the means of the balance between demand and supply in the blood.

8. There is a direct relationship between the magnitude of the ratio and the size of the kidney. This has been shown by comparing the ratios obtained from specimens of the kidney which differ widely in size. The most important conclusion is that the ratio of the kidney is a function of the effective size of the kidney. The reduction in the ratio or degradation of the varying tendency is a relation between the degree of dependence of the ratio and the amount of tissue which has been rendered functional.

9. The direct relationship between the magnitude of the ratio and the amount of the kidney function to the kidney is due to the amount of the kidney condition in which the kidney is called for the maximal

activity of all its secreting elements and is subject to the least degree of variation in rate of work. The ratio can be taken as an approximate indication of the size of the kidney only when it is determined during the strain induced by the administration of a large quantity of urea

J D BARNEY

**Bugbee H G** A Clinical Study of Lithiasis Based on a Series of 198 Cases *J Am Med Ass* 1917  
LIX 1492

Of the 198 cases 111 were males and 87 females. Excluding the cases of calculi of the lower urinary tract 12 of which occurred in females there were 73 males and 77 females with calculi of the upper tract.

The relatively large number of patients past middle life presented vesical calculi as follows: aged twenty to twenty nine 3 cases thirty to thirty nine 55 cases forty to forty nine 43 cases fifty to fifty nine 29 cases sixty to sixty nine 8 cases.

In the formation of urinary calculi two predisposing factors are (1) a gastro intestinal disturbance and (2) disturbed drainage along the urinary tract.

Interference with kidney drainage is most often due to abnormal mobility. The mobility may be slight and still cause a kinking of the ureteropelvic junction if the ureter is fixed. Of the 77 females showing calculi of the upper urinary tract in 51 the calculi were on the right side in 2 on the left while 4 were bilateral. In 39 of the right sided cases and 11 of the left sided a certain degree of mobility interfering with drainage could be demonstrated.

As all ureteral calculi are probably renal in origin they may be grouped together in this consideration. In the males twenty eight were right sided thirty eight left sided and five bilateral. Unfortunately in but few of these cases was the renal mobility ascertained but in several it was strikingly marked. One patient presented a pelvic kidney and several others showed a well marked prolapse. Abnormal mobility will no doubt be demonstrated more frequently in males if more careful examinations are made.

Three patients with renal calculi gave a history of injury. One patient presented a calculus with hyponephroma.

Pain is the most constant symptom of renal calculus and was present in some form in 35 of 43 patients. In renal calculi the pain was never severe except when the calculus was small and located in the pelvis or in a calyx so as to interfere with the urinary flow thus increasing intrarenal tension.

A dull ache localized in the costovertebral angle was the most typical symptom but was not constant and was evidently due to local infection. Radiation along the course of the ureter was present in seven cases in which the calculus was located at the ureteropelvic junction. Other radiations noted

were to the opposite kidney region the chest the right lower quadrant the testis the thigh and the entire back. Invariably the larger the calculus the less severe the pain and in eight cases only vesical symptoms were present. In four of these cases the kidney had gone on to almost complete destruction. Tenderness in the costovertebral angle or anteriorly in the right upper quadrant was elicited in 32 cases and the kidney was palpable in only 18. Roentgenograms were positive in all but two of the cases of renal calculi. In these two a diagnosis of an obstruction at the ureteropelvic junction was made and at operation a calculus was found.

Of 150 cases of calculi of the upper urinary tract 107 were ureteral calculi and while they were found lodged at almost every point from the ureteropelvic junction to the vesical orifice of the ureter 86 were lodged in the lower twelve centimeters and 65 of these in the last six centimeters. The symptoms in these cases extended in duration from a few hours to fifteen years.

Eighty six of the 107 cases of ureteral calculi gave a history of pain on the affected side 4 of referred pain on the opposite side 65 had a definite colic and 45 had had from two to eleven attacks 35 gave a history of having previously passed calculi.

Of the 65 cases of calculi lodged in the last six centimeters of the ureter 56 complained of urinary symptoms.

Cystoscopic examination revealed the calculus lodged in the mouth of the ureter in 4 cases. Edema about the orifice was present in 4 cases. A deflection of the stream of urine from the ureteral orifice was noted in several cases in which the calculus was lodged in the intramural portion of the ureter. The urine showed pus cells or blood cells in 81 cases was normal in 2 cases. Crystals were noted in 18 cases. Colon bacilli showed a growth in 62 of 78 cases in which a bacteriologic examination was made.

In 75 per cent of the cases a definite obstruction partial or complete was evidenced by passing ureteral catheters and bougies. In 11 cases the calculus could be located by palpation through the vaginal vault and in four males by rectal palpation.

In 78 cases a roentgenogram was made with opaque catheters or bougies in position. A positive plate was obtained in 56 cases. The 2 patients now showing a shadow passed calculi following manipulation. The calculi were all small and were either phosphatic or uric acid stones. A collection of crystals causing a definite colic was present in six cases. A complete obstruction was encountered in each case and was relieved by intra ureteral manipulation.

The author has made it a practice for the past five years to boil the catheters and bougies thus rendering the bougie soft enough to pass through almost any kink or to coil about a calculus. Often the tip of the bougie is bent so that it is hooked and by passing the bougie twisting it as it advances

the calculus which could often other be passed  
by encircled by the bougie

Calculation in the lower ureter may cause symptoms so like appendicitis that it has almost become routine to pass a ureteral catheter in all cases of right-sided pain.

In case of large branching, calculate the k d n y may have to be split a n t o cases. The remaining case can be ele d by pol l th tom.

Ninety two of the calculated in the ureters were passed subsequent to removal by cystoscopy. Only fifteen were removed by operation.

Calculation should not be left to the urethane tooling.

A method of illustrating the procedure for the  
la ga c l k a th ne e h b e i 35 by  
cm as to h k the end th ue al bu e n l  
ty t the l u g e it al ei loig the u e t e  
coln it f out the lulu a d thei pply b  
tra tion

Fifteen of the 141 respondents at open meetings  
approached the petitioners individually one to  
per toneally.

The effect of the following forty-three patient population for each calculation is by using a bilateral population.

One patient, however, had a negative result on the test. The use of the test is not a

not to be a  
ves cal cal ulu A l l m t h p t v t c r n l I  
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retent n p r t i b t r u t n t h t m l e  
and v t o e l t h t l b n h k

Model 1:  $\ln(\text{DITL}) = \beta_0 + \beta_1 \ln(\text{Con p it}) + \beta_2 \ln(\text{Influ n e of M pl nd T tal Opl m Alk lo d on R l Col c f l l q 7})$

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 of n r h r tomy

Morpheme increases the tonality and frequency of contractations in the urethral papillary or Sphincter contraction of total opium alkaloid laxation and derelict or enstopthor contraction. The literature has acted on an logos to that

of chloroform. The therapeutic value of Sahli's mixture was proved in a case of ureteral colic when the pain was quickly relieved and no nausea was produced after morphine had failed.

H W PLAGG 1 YR

G is nger J F Obst uction of the Urete 1  
S g Pl l 9 l 654

The author states that obstruction of the ureter is a title of generalality is mentioned in all texts. But a clinical entity it has been ignored. To detect a clinical entity does not require particular diagnostic ability but to prevent such secondary ureteral more important prevention of such a clinical entity with the early recognition and relief further obstruction. The author emphasizes very strongly the importance of chronic ureteral obstruction, thinking of it if to be treated with the expectation of prompt producing powerful demands to be sought possible elimination of certain clinical entities and to be emphasized necessity.

The author summarizes the following

(b) The luteal phase itself constitutes the essential pathway.

The second type is that clearly considered in the first. Since the etiological factor are (a) internal to the ureter (b) me diant focal infection (c) ch a n g e s in mobility of the kidney (d) re a l i f i c a t i o n (e) d i s t o r t i o n of the u r e t e r (f) p e l v i c p e r i t o n i t i s (g) l o c a l u r i n a r y i n f e c t i o n (h) c i d d i t h p a s s i n g c a l c u l i (i) h y p e r t h y r o i d i s m

Symptoms may be primarily associated with  
 the following characteristics:  
 1. Subacute onset

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 p t per ti all      n neu a then a

5 In the presence of such a symptomatic  
uterine lesion, multiple leiomyomas  
not completely benign and must be excluded before one  
can justify the diagnosis of benign neoplasia or  
diagnosis of pituitary adenoma.

6 D ig o i m de with the cy to cope and  
pyel hr m

6 Treatment consists of relief of the obstruction  
by means of surgery which may be required by the general case

1 C S 0

## BLADDER URETHRA AND PENIS

Walthe H W E T m rs of the Bldder 1  
5 g Phil 017 ly 68

The author states that there is probably no affection coming under the observation of the urologist in which modes of diagnosis and treatment have changed so radically in the last ten years as has taken place in dealing with tumors of the urinary bladder. The

perfecting of the cystoscope and the more extensive use of this instrument in all cases of hæmaturia has made it possible to diagnose growths more frequently and at earlier periods. Examination of the washings of the bladder and the microscopic study of these washings has also been of great help.

The main point in the successful management of tumor cases of the bladder is an early and correct diagnosis. Very often the symptoms are not fully appreciated. The three cardinal symptoms are hæmaturia, pain and frequency. The author states that often patients will be sent to him with histories of hæmaturia of long standing. Bladder tumors are divided into benign and malignant, primary or secondary, or may be designated according to the tissue as epithelial, connective or muscular tissues.

Opinion as to the treatment of tumors varies. According to the author, all cutting operations have been disappointing and at the present time he is using the method first reported by Beer in 1910. His method was the high frequency electric current in the form of a spark cauterization applied directly to the tumor. The author also states that radium has opened a new field of treatment.

The author cites 6 cases of tumors of the bladder, their history, treatment and results, with two purposes in view, namely: (1) to show successful results of high frequency cauterization and to add commendation to the procedure introduced by Beer; (2) to show the failure of scalpel surgery in advanced malignant growth of the bladder when considered from the standpoint of a permanent cure.

A. C. STOKES

Lewis B. and Moore N. S. Vesical Diverticulum. A Report of Two Cases with Remarks on Operative Technique. *J. Am. Urol. Ass.* 1917, 13: 1334.

In the first case reported, cystoscopy showed a diverticulum located in the left posterolateral segment of the bladder, anterior to the ureteral ridge. The orifice appeared about the size of a dime. The bottom of the diverticulum was not visible. Roentgenograms of the bladder filled with thorium solution showed a definite aculation about the size of an apple posteriorly and to the left of the bladder, attached to it by a narrow neck.

The anterior wall of the bladder, particularly toward the left, was very thin. Narrow strips of gauze were stuffed into the diverticulum until it was quite full. The diverticulum was converted into a solid tumor about the size of a pear. The peritoneum was then stripped from the bladder wall and from the tumor. Before excising the bladder it was observed that a dense fibrous ring surrounded the neck of the bladder. This ring was strongly dilated with a uterine dilator until it presented no further obstruction.

Two cigarette drains were placed in the pocket to the left of the bladder and were brought out of a stab wound in the left inguinal region. A retention catheter, size No. 20 French, was left in the urethra.

In the second case, cystoscopy revealed a diverticulum low down in the bladder wall. About ten yards of gauze strip were packed into the diverticulum after which it was resected. H. A. KRAUS.

Bec and Hrdengue. Extraction of a Bullet Lodged in the Bladder by the Natural Route Under Control of the Radioscopic Screen. (Extraction par le voies naturelle et sous le contrôle de l'écran radio-copique d'une balle de fusil logée dans la vessie). *J. de med. et de chir.* 1917, 11: 12.

The case reported occurred in a soldier. Radioscopic examination showed a bullet in the bladder. The author decided to attempt its removal per urethram under screen control. This operation has been performed only once during the war by Legueu under different circumstances and was successful. It was also practiced by Leck of New York.

The operation was commenced by dilatation of the canal with a No. 40 sound. Dilatation was continued until a No. 54 was passed without difficulty. A long clamping forceps was then introduced into the bladder. Under the guidance of the radioscopic screen, endeavors were made to seize the bullet. After several attempts it was finally seized by its point and extracted. The bullet was 4 cm. long and 7.5 mm. broad. It was slightly covered by a calcareous concretion due to its long stay in the bladder. With the exception of a little hæmaturia and feverishness, there was no postoperative incident of importance and the patient was discharged cured.

W. A. BRENNAN

Le Fur R. Autoplastic Reconstruction of a Large Urethral Loss of Substance and of an Extensive Wound of the Penis with Partial Destruction of the Glans. (Réfection par autoplastie d'une lésion étendue de la verge avec destruction partielle du gland). *Paris chir.* 1917, 13: 358.

Le Fur reports an extensive shell wound of the penis, corpus cavernosum and the testicle, necessitating the removal of the latter. By means of a series of autoplastic operations, he obtained a very satisfactory result. A fairly good æsthetic result has been obtained as regards the external genitals, using the scrotal skin. Not only the urethra but a large portion of the penile substance was reconstructed.

The most important point to which Le Fur calls attention is the regular and largely permeable canal which has been obtained, although the urethra was almost destroyed from the glans to the scrotal root. There is no threatened late stricture and after six months a No. 25 bougie can be passed easily.

Le Fur emphasizes the necessity of creating a urethral meatus of perineal derivation which should always be made in similar cases. It permits reunion of the autoplastic strips by first intention, which is impossible by the older methods, the indwelling sound or intermittent catheterization, and explains the good results of the autoplastics and the absence of stricture.

W. A. BRENNAN

## GENITAL ORGANS

Rytina A G The V rum ntanum with Sp cial  
Reference to ti e Sim Pocu s It Anatomy  
Histology and Physiogy J U l 97 3

The author has made a v complete study of the anatomy of the ve umontanum and ts c mponent p rts using very thin serial e ctions of th o gans obtained at autopsy. Th erumont num is a small round d o l ellpt cal or on cal l ton s tuated on the floor of th proximal half of th post r or urethra It i s parit d from th prote by th floor of the u th a On th ant rior surface a rul are th slt like or o l pening of the e j culatory d cts o e on rch l f that of the sinus pocula s v h i h is gen r liv in the midlie These st uctures tog the ith some of the pro stati ducts empty in tl ough th erumont num cause the ele at on fro the cth alfo ranim ke up the mal uteri Th r r o l ould le smooth flat suria th l st of th poster or ureth a and thv similar t in str c ture The s nus p ulis is an nc pul ted glandular organ ho v in op n by mall o larger d cts into one gland or common duct It s urounded by trn c pul from h i h strands of nt rglandular tom run n p t and support the v ous glandular m Th t th gland s not an e bryon t i p b v th healthy active looking t u mpo in th glands and the avid ty with whi h th c il t ke the t The sinu ends eith r n th upp r p t of th b i prostate or in the ureth l l l By p l stain ing smooth mus le f b s nbros d e i st i t s ewer demonst ted in t c pul l int gl l l r stromi cont nuou th n l i of th po tate and ending in the m s ular wall t i l u thr

The fu ction of th r t um d n pocularis are not kno Th t th r mont a i s not an erect le org n and c not caus a bl ck g of the poste o urethr th p not on fr gur ita tion of the semen d n e j culation has been p o n It is not composed of h a te ic blood sp ces and it remo l d o s not r sult n gu g t ion of the semen The blood supply n gr ter th n that of the su o ndin t s Walk den nst at d that the v rumontan m e t nd d not mor th n half w y to the ante or wall of the u thra by causing a artifici l r tion a h m n c da r and maki g a paraff cast of the r t i a It s now generally c epted that the rumont num simply dir ct the ejection f om the eja l to v ducts so that t w ll become t m tely m d ith the thirty or so ty prost t str a i ung sum ultaneou lv f om th flo r ides a l roof of th urethra and conver in to a d the ollulu Th int mate m ture is nec s r to ct t th sp r mato o The physioly of the s n s p lar is not kno n thou h it i suppo d th t it th n alkaline secret on i an djuv nt to that f th po tate in fluidifying the s men Its e c s on d e s n t interf r with the secundy of the men

The autho does not agree with Prosz that the ejaculatory ducts ha e n increased muscular in vestment which has a sphincteric action and that n the ton c or atonic condit on of this muscle rests th e pl nation of many of the sexual phenomena prec c ous and r t d e ejaculation spermatorrhoea etc Sc ual di turb nces do not follow radical re mo al f th colliculus A case as observed in h i h on ja ulatory duct ope ed into the sinus poculari H W FLAGGEMEYER

Pou so T o Ca s of Fo ign Bod s in tle  
Pr t te (D) l t e d p et ger  
le l p t t ) F l l t e S d j d P  
a l 906

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In th l l u M n port l t o similar c t e a i j a c b n t l l ces f lly operated pon W A B E v v

W t on L M A Study of th V J O fice F l  
lo ng P n l P o r t t omy J t l 9

43

Th e are th e gr ups of m culature s tuated at th e l t l nd n t l po t r membra n ureth a l g cont of f the et nation of urn The e a e the itern l sph cte and in tr n i mu lat f the po te io u ethra both of h h a e n l n t a v n type and the external sph n t e m r ur th a in the regi n of the t b l a l l a m e t The intri ic muscles of th th n t l aul or op m n are m ch more po r t n t l a n h a been ge rally thought They a e l i e d f m th mul cul t ue of the tri one and n t i t t o l v (i) an ner lon tudinal nd ( ) an ut lar i y e r tending from the t u g be at l t t t e r al ph cte a far as the p h f the duct f on Co p s gland These lave t t l t e r t l the internal ph ncter are n ner t d f m the po t t and ca e nous ple uses infe n ent ic g r n l n and g l a of the v m p t l e t H e e t e n l ph n t e n e ated by b ch f t l e t e n l p d c

W d H yma and t l r h a e nade a stuly of the n m l al ice and f changes in t particular ly ster up pubic pr tate tomy Pa diograph of the norm l o sice a l afte p o t t i c

hypertrophy using a 5 per cent solution of collargol show the internal sphincter as the point of closure. After suprapubic prostatectomy the external sphincter forms the point of bladder closure in the majority of cases the internal sphincter having been destroyed or rendered useless. The internal sphincter remains a patent ring showing a small pouch present at the site from which the prostate was removed continuous with the bladder cavity.

In twenty five cases of perineal prostatectomy the radiographs with a 10 per cent thorium solution in the bladder showed in no instance a permanent dilatation of the internal sphincter. One interesting case with a very adherent median lobe and deep prostatic orifice established continence twenty months after operation the trauma incident to the operation probably explaining the long interval. The internal sphincter although traumatized both by the hypertrophy and operation returns to normal in a carefully done perineal prostatectomy.

Cystoscopic changes in tabes dorsalis are analogous to those in suprapubic prostatectomy. Here to a varying degree according to the nervous involvement more and more of the intrinsic musculature becomes useless until a funnel shaped posterior urethra results and incontinence begins. In this disease the involuntary nerve fibers are destroyed while the motor branches to the external sphincter are uninvolved. From his findings the author believes that the internal sphincter and intrinsic musculature of the posterior urethra are the controlling factors in the retention of urine and that the question of continence would seem to rest on the preservation of these involuntary muscle fibers.

H W PLAGGEMEYER

### MISCELLANEOUS

Young H H and Frontz W A. Some New Methods in the Treatment of Carcinoma of the Lower Genito Urinary Tract with Radium. *J Urol* 1917 1: 505

Young and Frontz report several series of cases of carcinoma of the lower genito urinary tract treated with radium radiations. By means of special apparatus it was possible to introduce a platinum capsule of radium into the rectum urethra or bladder map out the area to be radiated and absolutely control the amount given. This internal use of radium with accurate methods of control and fixation has proven to be more productive of good results than the employment of large amounts externally.

External treatments of large amounts of radium to the lower abdomen perineum or acrum gave no relief if used alone. Close apposition of the radium to the tumor seems absolutely essential.

Cancer of the prostate and seminal vesicles responded well with relief of such symptoms as dysuria and frequency and with reduction in size

disappearance of induration and absorption of infiltration. In no case with complete retention or pains in the hips thigh and back due probably to metastasis was there any relief. Sections taken in cases coming to operation showed extensive shrinkage and degeneration of the cancer cells. By changing the position of the radium capsule it is possible to prevent rectal irritation. Evidence of rectal irritation is manifested by frequent desire to stool burning discomfort and discharge of mucus which may be tinged with blood.

Radiation of the malignant papilloma type of bladder tumor gave excellent results. Types of papillomata showing a histologic malignant change in the periphery showed no response to fulguration alone but disappeared completely when fulgurated following radiation. Malignant tumors with definite infiltration of the bladder wall as demonstrated either by cystoscopy or by palpation showed no improvement under the use of radium.

The authors believe that in radium there is a potent agent capable of producing marked changes in malignant tumors and that in some cases there may be a complete cure although more time must elapse before accurate final determination can be made.

H W PLAGGEMEYER

Baker T. Genito Urinary Causes of Low Back Pain. *Am J Orthop Surg* 1917 1: 819

Pain in the lower back frequently radiating down the legs may be due to renal and ureteral lesions. Hunner observed a case of stricture of the lower part of the ureter in which the chief complaint was pain over the sacro iliac articulation and the patient was relieved at once by dilatation of the stricture. Young describes backache associated with inflammation of the seminal vesicles. He noticed pain in the back, sacral lumbar and gluteal in six cases and pain along the sciatic nerve in three cases as one of the earliest symptoms complained of in 111 cases of cancer of the prostate. The pain in these cases is due to the pressure on contiguous nerves. As a point of differential diagnosis it may be stated that pain on motion and limitation of motion is characteristic of lesions of the bone and ligamentous structures of the lower back while these signs are absent or not so marked when the backache is of genito urinary origin.

In many instances the X ray will reveal the nature of the bony lesion while the same may be palpated. Appliances for the support of the pelvic bone will usually give quick relief from pain whereas they will be of no service when the pain originates in the male pelvic organs. The author has met 41 cases of pain in the back of genito urinary origin in a series of 146 cases of chronic prostatitis and spermatoecystitis seen in private practice. Pain radiating along the sciatic nerve due to cancer of the prostate is usually very severe. There is great need of more co-operation between the orthopedist and the urologist in definitely locating the cause of these pains of uncertain origin.

J J KURLANDER

De Sard J. Reparatory Surgery of the Genito-  
Urinary Organs (Chirurgie reproductive)  
généralité) A. H. d. méd. et ph. m.  
mil. P. 971 39

The plastic surgery of mutilations of the genito-urinary organs differs from that of other organs inasmuch as the functional results are of much more importance than the æsthetic. It requires a long period of preparation and a long period for the repair. The first include the disinfection and cicatrization of the wound. The course of the urine must be deviated in almost every case. Hypogastriodischarge is preferred by the author because it is more regular than perineal and better borne by the patient.

The author reports four extensive penile mutilating wounds treated by him.

The first case involved transverse wound of the penis 2 cm above the penoscrotal angle with complete section of the urethra and the right corpus cavernosum and a partial section of the left corpus. The superior stump was adematous and gangrenous and was only attached to the inferior stump by the skin of the dorsum. The period from May until October was occupied in disinfection, cicatrization and the removal of small shell fragments. In October extensive urethrotomy was done. From December to January plastic reparations took place.

In the second case the extensive complete destruction of the inferior portion of the glans. The superior and dorsal face of the glans was completely

open, the wound dividing it into two unequal parts. The left testicle was missing. The period from July to the middle of August was given to disinfection after suprapubic cystostomy. Cicatrization resulted in a deformed gland in two segments with a large loss of substance of the lower urethral wall. The repair operations lasted until the end of October.

The third case showed almost a complete destruction of the penis. At the lower part of the gangrenous stump there was a large wound extending to a third of the lower part of the scrotum, only the right part of which remained. The wound spread into the thigh and buttocks. Disinfection and cicatrization with suprapubic drainage extended from July until the middle of September. September to October occupied by repair operations.

The fourth case solved the section of the penis and the destruction of both testicles. A piece of furred skin was the only remnant of the penis left. Cystostomy with hypogastric deviation of the urine alone was sufficient to maintain erection until January. The period from January to February was occupied by plastic operations.

The plastic reparations in these four cases consisted generally in directing cicatrizing scars, finding the remnants of the urethral passage and then reconstructing the part as far as possible. In all four cases the result of the plastic operations is to establish normal micturition and in three cases ejaculation and erection were reestablished. Illustrations of the proper procedure are given.

W. A. BRIDGES

# SURGERY OF THE EYE AND EAR

## EYE

Donohoe W. D. First Aid in Eye Injuries. *North-west Med.* 1919, 13: 334

The purpose of this paper is merely to present in the briefest possible manner some of the more common injuries to the eye and its appendages the remedies to apply and how to apply them by the first one to whom the victim may have access following his injury. To be able to successfully treat a given part of the human body in case of injury one must of necessity have some knowledge of its anatomy and there is no organ of the body where this is so essential as in the case of the eye.

For safety in guiding the treatment one must know the cornea from the sclera, the iris from the ciliary body, the aqueous humor from the crystalline lens, and the relative importance of each structure to the integrity of the organ as a whole. For instance, an incised wound of the cornea may not be fatal to vision even though the aqueous escape, nor a similar wound in the sclera destructive through loss of vitreous, but a wound apparently of slight moment at the junction of the cornea and sclera may prove rapidly destructive to both vision and eye on account of injury to the ciliary body which is situated immediately beneath this point.

Of minor injuries of almost hourly occurrence and more abused than all other injuries combined is the foreign body in the corner. The first aid man in these cases should work with artificial light and condensing lens definitely locate his foreign body, anesthetize the eye with a 4 per cent solution of cocaine, and when certain of complete anesthesia attempt its removal with a small piece of cotton twisted tightly around the end of an applicator and placed directly on top of the foreign particle. Then by rolling the applicator between the thumb and finger it becomes entangled in the cotton and is lifted from its bed. This is not always successful with particles in the corner especially if they are deeply imbedded or smooth of surface but it never fails to catch them from the conjunctival sac. Should this fail carefully lift the offending body out of the cornea on the point of a needle or a cataract knife but never scrape off the corneal epithelium which opens up a region for infection.

Following this simple injury the eye should be tied up for twelve hours and if there is pain and redness a drop of a 1 per cent solution of atropin sulphate should be instilled as soon as the operation is over.

Following the use of cocaine for any purpose whatever the eye should be bandaged for at least three hours to allow the passing of the tendency to

separate the epithelium from its attachment to the cornea.

Burns of the cornea and adjacent tissues from lime, hot slag, molten lead and various acids are not uncommon accidents and while exceedingly painful are not always as destructive as the amount of suffering would lead one to believe. At other times however a very harmless appearing burn will not only destroy the eye but the socket as well by the scar tissue it leaves behind. The first treatment of these injuries should consist of cleansing the eye carefully of all offending material and dressing it with a liberal quantity of plain sterile vaseline inside and outside the lids and covering with cotton in preference to gauze.

In case of great loss of tissue by burning from any agent first aid measures should be applied according to one's best intelligence until the case can be turned over to someone with more experience. For all purposes where irrigation is necessary a saturated solution of filtered boric acid will meet all requirements and is probably as strong an antiseptic as should be used about the eye for any but some special reason. No remedy should be used in the eye without positive indication for that particular remedy. If no drug is indicated the eye will be better if left alone.

In cases of incised or penetrating wounds of the cornea it is vitally important to see them early and to study carefully the position of the wound in relation to the pupil. If it be in the center directly over the pupil atropin is indicated to prevent incarceration of the iris in the wound which it will do in most instances if the remedy be used early enough and in sufficient quantity to thoroughly dilate the pupil. If the injury be situated at or nearer to the corneoscleral junction eserine solution is the obvious remedy and like atropin if it is to be of any use it must be applied soon after the injury. If the wound is large and gaping it should be closed by careful suturing keeping the sutures as far as possible from the center of the pupil. Small wound in this region will take care of themselves under carefully closed lids and a gentle pressure bandage.

Scleral wounds should be sutured under careful asepsis and with scrupulous attention to the coaptation of the wound margins. In closing a wound in any region one must first exclude the presence of a foreign body and in this case none but the finest sutures and the smallest needles should be employed.

In wound of the lids it is most essential to do whatever repair work is found necessary as soon as possible after injury for in this region almost any



kind shape or size of wound will heal promptly if the apposition be good and the case seen early enough. This work is of vast importance to the victim for should the eye itself be lost the more necessary that the lids should not be deformed.

The man in general practice frequently called upon to render first aid in some of the more common varieties of very acute troubles of microbic origin and while he accepts them as emergencies only he should constantly bear in mind that all severe acute conjunctival infections in the stages of invasion are so nearly alike clinically that the only positive means of making a diagnosis is the microscope. If a violent acute conjunctivitis is found in an individual who has an acute specific urethritis one may suspect the presence of the gonococcus in the eye. Of one of the school children shows an eye that is red painful intolerant of light and full of excretion and says that the other children at home have or have had the same thing one may reasonably suspect a case of pink eye. But the safe way is the smear the aniline stain which all of these organisms take and the microscope.

In the newborn the judgment of the first aid man will be severely taxed when about the third day his attention will be called to the presence of pus in the corner of the eyes and he finds it necessary to decide whether he has to deal with the coccus of Neisser or the pneumococcus streptococcus diplococcus bacillus bacterium coli or some variety of staphylococcus any of which may be the causative factor in ophthalmia neonatorum. As a rule however if the gonococcus is not present the pneumococcus is the gonococcus present in about 10 per cent of these cases. While attempting to determine the bacteriology of their infection he will do well to start treatment at once and the surest of all remedies is silver nitrate in 4 per cent solution painted on the mucous membrane of the eyelids once in twenty-four hours. The conjunctival sac should be carefully irrigated with saturated boric acid solution every hour for the remainder of the twenty-four. The lid margins should be anointed with frequent intervals with plain sterile vaseline to prevent sticking and retention of pus.

In discussing the affliction of early life it is worth while to call attention to the subject of squint of any variety which may be brought to the notice of the general practitioner and to suggest that this is not an affliction to be neglected for a squinting eye if unattended is doomed to more certain blindness than is a case of injury from external violence. The process is slow and insidious and the patient has no warning of danger to sight until central vision is gone and the eye as far as useful vision is concerned is lost. Nearly if not quite all

cases of non paralytic squint if taken early enough can be remedied by careful refraction and properly fitting glasses. Parents of squinters should be advised accordingly and should never be told to wait until the child starts to school or to let it go entirely and allow him to outgrow it this he probably would do but would lose an eye in the outgrowing process.

## EAR

Emer on F P. Clanging Methods and Advances in the Treatment of Progressive Deafness from Chronic Secretory Otitis Media. *Bst. M. & S. J.* 97:1 583

The author's conclusions are as follows:

1. The course of chronic progressive middle ear deafness has a primary focus which persists as a low grade infection subject to acute exacerbations. In chronic cases such foci are usually multiple.

This primary focus is usually constant for the individual and is indicated by the location of exacerbations.

3. Every case showing variable hearing can usually be improved to the standard of the best hearing in that particular case.

4. So-called cases of nerve deafness of non specific origin are in the experience of the author due to toxemia from some definite focus.

5. Inflation in chronic cases is unscientific and harmful as a routine as the tube is already open and has partly lost its tone in the majority of cases. In those cases where the tube is not open it does no good to remove the obstruction.

6. Natural obstructions have no harmful effect upon the middle ear unless infection is present. Such obstructions however are the primary cause in the development of imperfect drainage which predisposes to infection and which is always present in cases of chronic secretory otitis media originating in the nose.

7. Foci whether in the sinuses tonsils mandible or epipharynx are potential factors in the progress of chronic progressive otitis media either by direct extension or through the lymph and blood streams.

8. No hearing test will forecast the improvement in a given case so long as the Rinne test is positive with variable hearing.

9. Whatever the microscopic appearance of the membrana tympani the cause of the deafness is active for a long time outside the middle ear as a toxæmia or low grade infection subject to acute exacerbations.

10. Constitutional diseases have but little effect upon the course of chronic secretory otitis media except to lower the patient's resistance and make him more susceptible to exacerbations of his localized focus or foci.

Orro M. Rott

# SURGERY OF THE NOSE, THROAT, AND MOUTH

## NOSE

Ferreri G. Malignant Papilloma of the Nose and Right Maxillary Sinus (Papilloma maligno del naso e del seno mascellare di d. str.) *Polichin* Poma 1917 v. iv sc. chir. 353

Ferreri reports a case of nasal malignant papilloma in a man of 42 years. The nasal tumefaction spread to the right maxillary sinus which with the ethmoid was completely opaque to the diaphanoscope. The tumor originated from the right naris. The author operated by Durante's method for superior maxillary resection and removed the greater part of the spongy mass of the tumor from the right nasal fossa and also removed the anterior walls of the sinus and the orbital floor with the scalpel and Gigli saw. The tumor mass filled all the antral cavity and extended upward toward the ethmoid and the internal orbital angle.

The author reviews the literature of nasal papilloma since Michel reported the first case in 1876. There are two varieties, the soft papilloma and the true or hard papilloma, the latter including the true fibro-epithelial tumors. The recorded number of the latter variety is small. From the histological description the case reported by Ferreri belongs to this class of tumors.

The author believes that such tumors have an ethmoidal origin. As regards statistics of malignant nasal tumors, Finner found 10 cases of nasal sarcoma and of nasal carcinoma in 28,000 patients. In 849 cases of sarcoma and 554 of carcinoma Gurlt found 15 of the former and 4 of the latter nasal.

It is evident that primary carcinoma of the nasal fossa is rare. It is generally found on the septum, especially on the anterior part, according to Kummel, although Tissier finds that the ethmoidal labyrinth is more easily involved.

W. A. BRENNAN

Goddard H. M. Deviation of the Septum and Submucous Resection. *A. I. M. J.* 1917, cv. 308

Goddard reports his successful treatment in many hundreds of cases of the common nasal deformity, septal deviation, by its most suitable corrective remedy, submucous resection. The object of the operation is to restore to as nearly a normal state as possible those functions which the nose is endowed with. To rectify breathing errors to substitute a well formed for an ill shaped nose to avoid possible facial despoliation as well as to overcome complicating diseases of local or systemic nature is the ultimate aim.

Before attempting alleviation or cure it is es-

sential that the physician be well acquainted with the physiologic and anatomic pathology of the nose incident to septal deviation. In the author's opinion, trauma during childhood is probably the most common cause contributing to the production of this condition. The many complications and sequelæ such as ethmoidal frontal and antrum disease create many unpleasant symptoms in the form of nasal fullness, pain, headache, vertigo, etc., and sometimes even remote reflex disturbances.

The author defers operation for septal deviation until the patient has attained adolescence or early adult age. Only those deviations that are obstructive demand operation, and the operation of choice because of its uniformly good results is submucous resection. If properly performed it is ideal. The discomfort to the patient is practically negligible, no mucous membrane is destroyed, danger to the turbinates is averted, and no redundancy or resiliency of tissue is noted. The conserving effect of this operation promises a reestablishment of normal physiologic nasal processes in the sense of proper tissue function, nasal ventilation and nasal drainage.

The author's technique, briefly stated, requires proper anesthetization of the mucosa overlying the septum as well as depletion of the peripheral vessels through the local employment of 20 per cent cocaine solution and 1:1,000 adrenalin chloride solution for about 15 to 20 minutes, followed by the injection of a 2 per cent solution of novocaine at the junction of skin and mucosa. Then an incision is made at the junction of the skin and mucosa, starting high and extending down into the floor of the nose. This incision is made deep enough to expose the glistening cartilage. A few rapid strokes with a Carter curette separates the mucosa from the cartilage. An incision is next made through the cartilage to the basement membrane of the opposite side and with the Carter instrument a rapid dissection is again made as on the first side. With the membranes of both sides thus freed, the cartilage is engaged between both blades of a nasal speculum. A nick in the cartilage is then made with pointed scissors as high up as required to remove the deviated portion. The incision in the cartilage is continued with a small swivel knife and with the speculum still in place all deviated portions are removed. The flaps are replaced and retained in position by a Simpson sponge splint on each side. The following day all dressings are removed and the patient is thereafter seen daily until complete healing has occurred.

The two chief complications during operation encountered by the author are hemorrhage and

perforation The for me s usually controlled by the applicat on of its site of drenal i blor de packing the latt r i l t al o i n att mpt b ing made to clo e it The m n q elx to th op ra t on rre hæmatoma bs ss f the ptum fct on of th cu ta huan t b nk 4 of th i l l dg belo th as l bon and ut thmo l t s Infe tion is apt to o cu d pit r v p auti n taken

Kaempf L G N sal S ptum Defo m ty in Clldr n L r i g p q 8/8

The young t clld v as n e e k l d the lde t seven years The majo ty of the chlre ran ed in age from two months to four years There e e o o child en n the f st year of life 4 nd s s x month and 57 between 1 and t v l e m th old Be t v e n one and two yea s of age the e we e 5 child en between two and tce the e we e 34 from the f urth to the fth yea the e ere 4 children and one each in th r xth and e venth years Of the total there v e 40 per cent of sept l deformities o pe cent of frank dev at on and 30 per cent of septal th ken ng As an e dence that the thickened pta ere but fo e runne s of frank dev at ons later on re cited the following statst cs

In the f st year the pr port on of t u de iat n is 8 per cent and in the fou th yea 55 pe cent The thickened septa h h a e 5 per cent in the first yea and 45 pe cent n the c nd fall t 3 per cent in the third and per cent in the fo th yea r

Less than 5 pe cent f the total ca e th de vat n had hypert ophied i ferio tu binates About 4 per cent h d hype tr phy of the m dle tu bin tes

The following statistics deal th the el t io ship of eptal dev at ons to hypertrophied ton ls

Of the 104 children w th septal defo m ty 8 per cent had hype trophi d tonsils Of 1 child en without septal deformity pe ce t had l yper trophied tonsil Of the 8 cas s of hypertrophied tonsil 53 per cent had septal defo m ty h le of the 7 cases with small ton l ly r s per cent had septal def m ty

The auth believes that hypert ophied ton l and septal deform ties have a common et logical factor and that factor seems to be the chrou rhin tis A vicious c cle sta ted be nng with the narro v nose v hch cau e rhinitis and th i n turn causes increas n growth of tonsil a d adenoids

The l tte increa es aga n the rhinitis which in tu n gg avates the eptal defo m ty

OTTO M P T

# THROAT

Ster kman C A C e of Intr nsl Capc r f the L r yn T a heoth y m Total L ryngec tomy (l l t d de n tr q d l t h e th y t m l v e t m t l l) 4 l e l h i c 9 7 l b

A l d r l l p l a t lury gobr ncht s fr n p r L t bglottal polypu was dag l th i l yss t tle o l rd Two v r tter om n m nt f thc d r se the man s c l t n tat l a t r h e o t h y r o t o m y and t v m l l t u m v m o v l from th r g on of th gl t t n l tr h l i n n u l i n s e r t e d E x a m n t o t h t u m o r s h o d t h m t o b e a n p u l l o n R p l g r v h h o v e r o c c u r r e d and the a u t h o r d d d o n a t t a l l r v n g t o m y f o l l o w i n g S i l l u s t h n i q u e

Th p top t v ou v s t f a t o r y e x c e p t for l h t f r l u g the f i t t h r e d a v s The m t p n d b t o n month f t o p e r a t o n d h g n r l o n d t o n w s e l l e t

Aft e l v n g t m y p t i n t v h o s u c c u m b g e n l l y d o t l n t h t d v s f r o p e r a t o n C r f l n d n t n u o u s p o t o p t i e t t e n t o n i r g u d b t r g r d h o p i t a l a t f e e d i n g d n g t

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R g r n g t h t e l i q u e f o l l o w e d e o l a r y n g e l l u r y g t o m y t h a u t h o r t h k s t h a t t h r e i s 66 a t l p p r h n s i o n o n n i n g t T l e o f t o n i s d l t d m o r t l t y h i g h 20 t 5 p r n t

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W A B R E N A N

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Th d fth p r t ju f mth du d m  
t th st mach t ff t po tl l l f g t  
cd ty d po tl j a I f t J I p M d  
9 7 8 [338]  
A t p tt M M ( d i l  
l Ml 9 7 [339]  
l ff ct f j n t m v th t l t t l  
tl t J K d n l W I B Ar h I t  
M d o 9 7  
Cl h th pe i h l l l d j t i t l  
d fth pl l l d t h k j t i t  
W C B k J E J M d o 8 4

Th t of th pl t H d d tru t d  
ge t d t haem l t j d ce th fl  
pl t my d f l l od t g to po the p d  
t f b l p k m t k C J E p M d 9 7 [339]

## Misc llan u

L t j t j U j Am I t II mœ p 9 7  
c o  
R l t n fl æ m h d l d to th h lth b l c  
W M B f Am I t l Soc N Y 9 7 J [340]

## SURGERY OF THE EXTREMITIES

Dise ses of B n s Jo nts Mus l s T nd n -  
Gen al Condi ti ns Comm nly Found  
n th Ext m t

l l k t t t d l N A l M l n  
l W h p h i h d j l t t l t th [340]  
H y p e t p h i h d j l t t l t  
h l B q f m l j t l  
L A h fth i k i g j t l  
l A l t l t j l m l l  
l N t n k n l H B A l  
f m d t l l m l P d t t k c c [340]  
I l l t l t 4 4  
H p e t j h l l v t t t k j t l  
H k j s c l Ch k j 9  
T m t t h l l A l  
J l l h y t l t t t t l t l l l [340]  
g l h y N A M J l l l j l l o  
l l l h t t t l l j b j l h t t l j  
l b t b c c W B l l t m  
S d l d P o l o W b o  
M p l l l j 3 c l Ch k l b  
l m t j D I s k c l Ch k  
A f l m l p e t h v t t t h y  
G A c l m l l l S P m th j t h y  
l My t p l t t t t l l t t l  
r p t of M T J Am M A o l [341]  
D plac m t f b ca f l t k j  
J J A s Am J O th l S k o 8 3  
O th t t m t f t l l f th k  
Kou r o s d th B l l t m œ m S u d l d  
P 9 7 th ( 3  
A t r t f l l t t t l l j t l C  
S m p M l l l M J 9 3 9 4  
A tom l d p h y t k l b n d l y g th  
t atm t f j n t m l b n l j t A  
K r r i M d P C C 9 7 4 8  
l f t l e a l f t g l s f th l g j t  
l t f r m o c t p H C  
CLARK J Am M A o l o o o [341]  
l ph y l f th o p t m l l t f t l  
l d C I o Cl d k a l m  
B l 7 3 6 7

T m t m p l k M t l Co ECH OT  
K l h l o l s [341]  
A t t l t f th l l C J H is c  
Am J S k 3 0 c [341]  
J h M l l l d m f f t l l l y 9 1 6  
R f f v Am J O th f S g o 5 9  
f k t l l d f v t n t t f the  
l D M c f l l M J o 3 8 4  
l k l t h l t m l foot Am  
R W A S g f h l o l 4 9 6 [342]  
l m m t t l l t m d k ft n f  
l h l t f th f m H C t k B l l t m m  
l h l m f t l l o l o  
A h l k t t l l t B l o 7  
C f t l l b B M h m d  
W h l N

## Fr t nd D loc tio

f r t C O N Y M J o 7 5  
f r t C O P S k Cl Ch a g 9  
C mp l f t D F S th P t 9 1 7  
l t t f f m p o l f t t t l l y b  
m th t t H J l J M h St M S 9  
C h t t t d p e l l y the l l l m t  
l D r A h l m l t p h m m l P 9 1 7  
l m k t t t t f a t l D UTIES [343]  
l R D A h l m l t p h m m l  
o l l  
l h m d m l l j t t t m t f f t P  
R f f c l M A J 9 7 6  
Sh l l t n th f t f k f th h m  
f r k l y m d o 5 6 8  
l d t d t n f h m f c t b th  
H n q p p t l A h l m c l t h h m m l  
P o s l u 4  
T m t f p e l c f t d l u t L G  
G r r f l l R m 9 7 v l t 4  
T a m t d locat f th p b y m p h y t l m  
p o t d t d t th t u t l l s J  
f r r Bull t m m S d h d P 9 7 l  
6 3 6 [344]  
C h t C j f th f m D N f TRAT  
S g Cl Ch a g 9 7 3 0 9  
f t f t l n k f th f m I D l B l l  
t m m S l h r d e P 9 7 l 8 8

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Not so t h f t P T Do o B t M J 9 7 C tr l of th ped s gry n th T y  
 1 7 7 f e t t h f t a l l d N Y M J 9 P 9 5 1 86  
 c Th 76 2 om ul e d t n f th l d M d J J A t l 0 7 45  
 Aut l 9 7 453 l th l c l d p t of Hugh & S j 9 1 404  
 O Tl ma A K L I T H B t M J 9 R t t l ped 2 ry A MOVE Pra t t  
 8 4 L d 9 46 [349]

## SURGERY OF THE SPINAL COLUMN AND COPE

Sp b s d t p t t t m t Γ H B K M A Γ t l l p k l by p e t b l ad  
 d A W A N St P M J 9 3 p t l v t l of o l m C A C U Y R m é d  
 v t b l d u b v t m t m I R D R d d l S l m o 69  
 Ch r d ga d m B l g 9 1 5 J l d l C H H r A m J O t h P s r g 9 1 8 4 [350]  
 T o f p l y l I H S H V J l d l F r t d t j f th i e C L BLACK M d  
 P r 0 17 0 3 D f t f d f nt t f th t h p l l v f th H l d 9 7  
 f f t h l m b B f t r J d d l P 9 1 3 T h l g r f t t b e l d f th p  
 C d l l m b b f t b l l g d l y t l T H M I t e n t J S g 9 7 x 347 378 [351]  
 f m d H C s u t B l l t m m S d h u r  
 d P 9 7 l 9

## SURGERY OF THE NERVOUS SYSTEM

S m points i g r v j H S S A R R d p o t f th l r v e R K A U S E R  
 B t M J 9 8 7 M h m l W l h o 7 l v No 9 [351]  
 Th h f th l l r v t l m A P u r M l t t n t f th l sympathet E F  
 Ch d o g a d m l l g 9 7 4 C v N Y M J 9  
 S t f th b t l t r b d d o b l m t I c h l l h y b c u r e d b y f l f o m d r a  
 G R r d Ly m d o 5 0 g H C A B l l t m m S c d h u r d P  
 B h u l u t d t H T P R J A m l 0 3  
 M A 9 7 l 6 S s h v f th t u n k C l e y E R B l l t m é m  
 E p h l f th l y m p h t g l o f o l l S s h v d l 0 7 l 56  
 s t f the t n N L r l A p e m t l t l t t th t u d y f d  
 m é d d l S s R m 9 x 7 9 d f t l t t f I D u r c e v d  
 T t m t o f t th l v f 9 s A C U Y M d i & C 9 7 360 [351]  
 I S t r a s J A m M A 9 1 3 N l l t f n d t o p e r a t  
 T r t m t f t m t r l J A S c R d t m a t j f t g th t r l e s s y t m  
 A ch d m d t p h m m l P 9 5 l J J T M A B o t M & S J 9 7 l 5 3 [352]

## MISCELLANEOUS

## Clinical Entities — Tumors Ulcers Abscesses Etc

The n l b l m d the l d W S B a r v  
 B I E M y l d M J 9 7 l 93  
 C d t s g l t t m t A D B N  
 C l d M d 9 3  
 A n a t t m p t p d e c m b y d m W S  
 I A Z U B A R L O B t M J 9 0 4  
 A t l y m p l a l k a m d l m p h t l s a c m  
 l y m p h t l o s m th t y h l t l o m  
 r u l e p h r i t m g l i c g t u m D S t [352]  
 I t t M J 9 7 0 0 3  
 O b r v t i o n s t h t m n t f m y l o y u l k a m  
 b y r d m H Z G I F F N B t o M & S J 9 7 l [354]  
 686  
 Th a f u d d t h t t l y m j h a t D  
 S i s M A m J D Ch l d 9 7 463

A a f p l r l l l d t u b e g th p y  
 u W T i A h p d t 9 7 9  
 A f g r u l m t C B U p v d M M  
 C L r R A m d g e t J o s A 9 7  
 5 5  
 Th g u c l m p l t f t y p h d d p t y p l d  
 f r s A E W J s L t l d 9 7  
 8 3  
 I l t t m t f f c l e H B W H I T N E Y C l  
 l M d 9 7 3 8  
 A l t t C h i A W C C O R D I t r t J S g  
 9 7 x 36  
 T l f l t t n d l g t l t  
 t l l e J S D J A m M A s 9 7 l  
 s  
 Th a b t t f u l t r l t l h t H S N e v  
 J L p M d 19 7 84

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 Os to M 46  
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 P A 44  
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 Q ell B 43  
 Re W A 4  
 Re b M S 454  
 Rob rt C H 473  
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 R gy A J 469  
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- Sal ri S 49  
 Sau F D 464  
 Schle ge E G 464  
 S tt A C 47  
 S tt J R 43  
 S g t E 43  
 Se A 448  
 Se J W 444  
 Sh J l L 437  
 S be P R 4  
 Slk J F W 406  
 S cl T 457  
 Sollm n T 48  
 St g b J 468  
 Sym M 4  
 St O J 485  
 St dl A 443  
 St e T G 473  
 Sut r F 48  
 Sw R H J 443  
 Symm s D 437 453  
 Sym ds C P 4  
 T t 44  
 T y l k I 439  
 T cm 49  
 T y B 478  
 Thoe n F 47  
 Th m B P 453  
 T m y N 485  
 To ce G 435  
 T a t C I 4  
 T oell A 48  
 T tt W 486  
 U g L J 456  
 V lt c l G 448  
 V Em F T 475  
 V n R th P 45  
 V uch E 43  
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 V r m G 47  
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 V C S 48  
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 W I h d A J 432  
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 W ll H G 453  
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 Y m g k 45

# INTERNATIONAL ABSTRACT OF SURGERY

MAY 1918

## ABSTRACTS OF CURRENT LITERATURE

### GENERAL SURGERY—SURGICAL TECHNIQUE

Ochsner A J Postoperative Treatment of Surgical Cases *Illinois M J* 1918 xxvii 20

After the author emphasizes the importance of certain pre operative measures the following rules for postoperative treatment are mentioned and discussed

Hot water by mouth and proctoclysis is given directly after the operation

Gastric lavage is indicated for abdominal distention nausea or vomiting

An ice coil over the cardiac region is used for high fever and for a rapid pulse for the latter also give a normal saline transfusion

Bronchial irritation is alleviated by elevation of the head of the bed 12 to 18 inches and by proctoclysis and normal saline transfusion This is also effective for peritonitis or pain the therapeutic lamp should also be suspended over the abdomen

Transfusion of whole blood is indicated for extreme shock

With the exception of peritonitis and all operations on the gastro intestinal tract a soap suds or normal salt enema should be given and castor oil on the tenth day Broth beef tea or gruel should be given on the third day

The patient should never be moved to the dressing room unless in good physical condition

Patients should never be left lying on a cart in the hall waiting for operation or dressing

When hæmostats are left in the wound they should be loosened on the second evening and removed the following morning Superficial sutures should be removed on the sixth day deep ones on the twelfth to the fifteenth day

Castrectomy prostatectomy and mammectomy drains should be removed from the second to the fourth day gall bladder tampons on the fifth day cholecystectomy and appendectomy tampons on the seventh to the tenth day vaginal tampons in

clean cases on the fifth day endometritis cases on the second day

No drugs should be given except after consultation H H FRELICH

Jones H W After Care in Abdominal Operations *N Y St J Med* 1917 xvii 458

If the patient recovers quickly from the anæsthetic and vomits or shows signs of restlessness one sixth of a grain of morphine sulphate is given hypodermically If the patient sleeps out of the ether this will not be necessary until later Rectal saline one pint is administered slowly before the patient recovers from the anæsthetic or immediately after Water either hot or cold as best tolerated is given as soon as the patient asks for it

If vomiting persists after twelve hours one dram of sodium bicarbonate in six ounces of lukewarm water is given This washes out the stomach and usually results in cessation of vomiting Only rarely does it become necessary to resort to the stomach tube When the soda solution is retained it is useful in overcoming acidosis In any case bicarbonate of sodium in doses of twenty grains every three hours is helpful for the first two or three days It not only overcomes the acidosis but appears to have a favorable influence on the gas pain

In nearly every case the author orders morphine sulphate one sixth to one fourth of a grain hypodermically every four hours if occasion requires for the first two days In over 100 cases it has never been necessary to use more than one and one half grains for any one case

A cathartic need not be administered until the third day If the patient is made very uncomfortable by gas distention soap suds enema may be given If this fails a high enema containing one ounce of magnesium sulphate one ounce of glycerin and four ounces of water may be used Occasionally



turpentine is added. Cathartics are not given by mouth until the third or even the fourth day. Morphine and antacids can be depended upon to relieve the gas pain.

To insure a rapid convalescence sleep is essential during the stay in the hospital. If the usual poe baths and hot drinks at bedtime do not accomplish this purpose bromides and hyoscyamus or some of the coal tar sedatives should be used. The conservation of nervous energy determines a favorable outcome in many cases. EDWARD L. CORNELL.

### ASEPTIC AND ANTISEPTIC SURGERY

Constr. C. Treatm. nt of Large Septic Wounds by Means of Irrigation with Capillary Drainage  
(C. d. l. g. d. i. f. t. t. h. m. d. t. g. e. o. d. g. g. J. p. l. l. ) P. i. l. R. m.  
9. p. i. 57

In treating septic wounds Canest. o has modified the C. rel method by substituting strands of rope of cotton instead of rubber tubes. These cotton strands run into a reservoir filled with antiseptic placed above the patient then traverse the furrows of the wound and merge and drain into a lower receptacle. If the drainage is not long enough to traverse the wound then a doublet may be used one set from the antiseptic to the wound having an efficient function and the other set having an efficient function from the wound to the drainage receptacle.

The author's method is based on his observations that if two vessels be taken both containing hypochlorite solution with a difference of level between them of about a meter and then connected with siphonism and the fluid will pass from the upper to the lower vessel with a velocity equal to about 140 ccm per hour the velocity increasing or diminishing according as the distance between the vessels is increased or diminished. Also if one vessel a hypochlorite solution is placed in one end and some organic fluid such as putrefied hematocritum and in the other and if the three vessels are put in communication by the cotton strands it will be seen that the hypochlorite solution passes into the second receptacle and from there mixed with the purulent fluid it passes into the third.

The author shows how the method may be applied in different classes of wounds and gives 10 illustrative cases treated by him in 9 of which the infective process was overcome. He claims that the cotton strands provide a more efficacious drainage than rubber tubes and are less costly. W. A. BRENNAN.

Haycraft J. B. Treatment of Gunshot Wounds with a Solution of Soap and Water and Primary Suture. Brit. Med. J. 9 8 8.

The solution used is pure sapon durus 1 part obtained in blocks and cut into shavings which are dissolved in hot water 10 parts previously boiled. When used it is mixed with an equal volume of sterile water.

Superficial wounds are completely excised and soap solution well rubbed into the surface and the wound stitched up. In single penetrating wounds the skin wound is completely excised and the track of the missile laid open and the surface of the track cut away. Foreign bodies are removed vessels ligated and the wound swabbed out with soap solution. Muscle and fasciae are closed with catgut and the skin sutured. Seton wounds are treated the same way at the entrance and exit wounds. If the effect of much destruction of muscle tissue the skin is sutured over the wound and a small rubber split tube put in for one or two days. Amputations have been completely stitched up with a very small split tube in one angle for twenty-four hours. Penetrating wound of the knee joint have been completely excised down to the synovial membrane the joint irrigated with soap solution and the wound closed in layers.

The effect of the soap solution seems to be hemostatic. The total number of cases is 16. Out of 8 cases in which the result was observed 9 eventually healed and 7 failed altogether. Out of 38 compound fracture cases 33 eventually healed and 5 failed. In one case there was a little oozing or suppuration necessitating the removal of one or two stitches. Four charts are appended and two tables are given.

The conclusions are as follows:

Soap solution easily permeates and comes into contact with the whole surface of the wound. It acts as a mechanical cleansing agent washing away all debris.

Complete excision of a wound leads to an aseptic surface is possible only in superficial wounds and in superficial muscular wounds. It is impracticable in deep penetrating wounds compound fractures etc. on anatomical ground and it would entail a much freer removal of tissue which may impair future functional results. These latter cases when treated by soap solution and primary suture heal better than if an antiseptic such as euol or bipp had been used. It follows from this that the tissues themselves are able to deal successfully with any infection which is left behind without the aid of an antiseptic. This point is particularly emphasized by those cases in which there is at first an intense local reaction following the operation which subsides as the tissues gain the upper hand.

Success depends on getting cases with a few hours after the wound was received before infection progresses far into the adjacent muscle on the though removal of dead or grossly damaged tissue and the local action by lavage and removal of any foreign body that may be present.

Compound fractures of the upper extremity practically always heal only 3 cases of fracture of the femur have been thus treated and of these 2 were successful but the number is too small to warrant a definite opinion. It is necessarily the most severe type of case one has to deal with but

the results of those cases have been distinctly encouraging

5 The advantages of primary suture are obvious (a) easy rapid and painless dressings (b) time is saved for everyone once the patient has left the operating theatre (c) it is economical The time taken in the operating theater is however considerably longer and this generally forbids the use of the method when the pressure of work is high

6 One of the most important points is that no severe injury which has been stitched up should be evacuated for at least a week first because it may just turn the balance during the early days of local reaction when the tissues are getting the upper hand and cause failure and secondly because when it is very difficult to decide whether the case should be opened up or not the operator himself is in a much better position to judge what is likely to be taking place inside the wound he has sewn up than someone else who gets the case later consequently stitches remain in which might otherwise be taken out

7 No opinion can be given as to the ultimate functional result as to bony union and the action of muscles

In those cases in which primary suture has been out of the question owing to gross loss of tissue after the usual operative procedure soap pack has been used after the manner of the salt pack It has been left in as a rule for five to seven days and when taken out left a beautifully healthy wound

CARL R. STEINKE

Gurd F B Potassium Permanganate in the Treatment of Anaerobic Infection of Wounds  
*J Roy Army Med Corps Lond 1917 LVII 202*

The author thinks that unless adequate operative and mechanical treatment of wounds infected with the bacillus aerogenes capsulatus is carried out no anti septic employed as a dressing will be of value Prevention and control of infection by this bacterium is extremely important for surgeons working in casualty clearing stations

In the author's hands potassium permanganate solutions in dilutions of from three to one half per cent have proved more effective in the prophylaxis and treatment of wound infections by the gas producing group of anaerobes than other preparations It should be used whenever an infection has commenced and in all extensively lacerated wounds especially if accompanied by bone comminution or injury to important vessels

The author gives his reasons for the selection of potassium permanganate (1) it is cheap (2) it is a powerful oxidizing agent (3) it is an effective germicide (4) it is astringent (5) it does not macerate epithelium etc (6) it is a mild irritant and stimulates blood circulation (7) it causes little pain (8) it induces the prompt appearance of healthy granulation (9) it does not stain the tissues

The results in a large group of cases have been uniformly good

W A BRENNAN

Emerson M L Bismuth Iodoform Petrolatum Paste in the Treatment of Recent Wounds  
*J Am Med Ass 1918 LIX 9*

The author describes this paste chemically states the technique of application and cites cases illustrative of results obtained from its use

The paste consists of iodoform 2 parts bismuth subnitrate 1 part and liquid petrolatum sufficient to make a suspension To this mixture may be added three grains of thymol rendering it odorless but not changing it chemically Thymol one half dram may be added to a five yard package of iodoform gauze to render it odorless Hands instruments or containers washed in turpentine or mustard water will lose the odor of iodoform

This mixture has been used in fresh war injuries and the author strongly advocates it after using it in a long series of hospital cases

The paste is rubbed thoroughly into the wound with a piece of gauze until it is intimately embodied in the wound surface and edges and the entire raw surface is studded with crystals Surplus paste is then wiped away and the wound edges coapted firmly until hæmorrhage ceases In scalp wounds an occasional vessel will have to be crushed or twisted and better success is reported if hæmorrhage is controlled in this way No catgut should be used In this class of cases the results have been particularly satisfactory practically no complicating infection occurring since its use

In face wounds approximation is attained by horse hair suture Coaptation is also effected in some cases by the use of narrow adhesive strips Dressings are avoided in face and head cases because of the conspicuousness of the bandage and increased likelihood of superficial infection

Strands of silk worm gut are usually placed in contused or lacerated wounds to establish drainage In larger wounds with macerated soft parts and much dirt included it is recommended that the edges be trimmed and the fresh raw surfaces thus formed be coapted by suture and drained for a few days

An interesting report of cases is included indicating satisfactory results from its use and pointing to the economy of its use and its painlessness

V E DUDMAN

Potherat G Primary and Secondary Union of War Wounds (Réunions primitives et réunions secondaires des plaies de guerre) *Bull et mém Soc de chir de Par 1917 XLIII 225*

In 21 primary suture of wounds Potherat had 2 failures and 11 partial failures When for instance the wound was more than twelve hours old or was a long sinuous seton and he could not obtain primary union he did secondary suture After the usual surgical disinfection he submitted the wound to continuous or intermittent irrigation with chloride of magnesium 1 5 per 1000 to which is added 0.125 gr of ammonium chloride

Potherat has used the Carrel Dakin solution but

has not found the method satisfactory. Wounds are not cleansed as rapidly as claimed and often there are peripheral burns observed on his own as well as on the patients of others. He prefers the effect to use magnesium chloride which is rapid in its action and is not harmful to the tissues. It is also easily prepared.

In from eight to ten days an arrest of suppuration is obtained and within a few days secondary suture can be undertaken. The results of 459 secondary sutures gave only 20 failures. W. A. BREWER

**Le Grand** Color Fast on of Tissue and Primary Suture (F. t. l. t. t. p. m. t. )  
B. l. t. m. m. S. c. d. l. d. t. p. q. l. 6

Some time ago Le Grand reported his initial work in the coloration of contused wound tissue by solution of methylene blue in formalin as a guide to resection to be followed by primary suture. The present report gives further experimental and statistical results.

He has altered his solution. Instead of using a 40 per cent commercial solution of formalin he uses now a 10 per cent solution. The quantity of blue has also been reduced from 10 per cent to 5 per cent. With the reduced method the effects previously observed on the blood vessel or nerve although lessened still exist to some extent.

Success in treatment necessitates the removal of all tissue destined to necrosis. No antiseptic treatment will permit the primary suture of a wound but resection of the contused tissue permits it. The color fixation of contused tissue has for its object the careful and exact resection of all contused tissue and the peripheral reaction which is not capable of effecting this. The technique of injecting the tissue is given.

The present statistics of Le Grand comprise 99 cases with 10 failures. Of the 79 cases were 1 wound of the soft parts, 67 were osteo-articular, these latter giving 7 failures. 49 cases were fracture proper.

If articular fractures be included all other fracture cases treated gave 85 per cent success. In fracture of the long bones including articular fractures the percentage of success was 84 per cent.

The coloration acts in two ways. It not only indicates what tissues ought to be removed but it reveals delicate structures which otherwise might escape the surgeon and hinders the spreading of infection. It extends the period during which primary suture may be attempted. In the statistics are included 4 fracture cases operated upon and sutured more than twenty-four hours after occurrence.

W. A. BREWER

## ANÆSTHETICS

**Clarke** T. Anæsthetic in Military Hospital  
B. t. M. J. 9879

The patient is given a preliminary morphine gr 1/4 and at opine gr 50 half an hour before

operation. The anæsthetic generally used is ether preceded by chloroform, a separate mask being used for each. A layer of lint covers the mask for chloroform and two layers of lint for the ether mask, thus avoiding the danger of giving a mixture of unknown length.

In a fairly open ether drop method on a Schimmelbusch mask is used. The average quantity of anæsthetic for an operation of half an hour is 2 drachms of chloroform and 3 ounces of ether. Clarke has administered nearly 300 anæsthetics without one fatal case or any serious difficulty.

He has introduced the Shipway warm ether apparatus and finds it very useful in cases requiring prolonged administration. The type of patient is different from that in a general hospital in peacetime. Most of the patients are robust young men living an outdoor life. There is with hell shock require much more anæsthetic and have a greater tendency to excitement while going under its influence. C. L. R. STE

**Silk** J. F. W. The Administration of Anæsthetics in Home Military Hospitals. P. c. R. y. S.  
M. d. 97. S. t. A. æ. th.

Silk states that the war introduces features in anæsthetics which are relatively unfamiliar in civilian practice. With the acute shock of the battle field the home hospital has little to do but on the other hand many men suffer from a condition of chronic shock which renders them troublesome from the anæsthetist's point of view. Many soldiers have been subjected to a prolonged suppuration which has a bad effect upon the heart muscle. Also the ill-timed effort of overtraining and underfeeding frequently frequent and when such a case comes to the anæsthetist trouble is likely to occur.

In military surgery the exceptional cases call noticeably for variation in method of anæsthetization. But the normal or straightforward case is relatively more frequent. Accordingly the first consideration is the selection of a routine anæsthetic method.

The difficulty of supplying the great number of hospitals with skilled and efficient anæsthetists is very great. This together with frequent necessity changes in the anæsthetics rendered desirable to supply a standard equipment to complete a hospital with efficiency. The outfit: (1) nitrous oxide apparatus (2) Schimmelbusch's frame (3) Clover's inhaler (4) Junker bottle (R. g. b. s. safety pattern) (5) tongue forceps (6) mouth gag.

The use of unmodified chloroform should be avoided first because even in the hand of the most skillful the mortality is relatively approaching one to two thousand. Of the deaths reported to the author since January 1917, 5 per cent or more were due to occurrence of undiluted chloroform. Of these fully 8 per cent died before operation had begun. Secondly, because the author has observed that among the

est advocates of pure chloroform few know how to give the drug properly. However the value of this drug in certain cases must be recognized and when sufficiently diluted with ether in one or another of the well known mixtures it forms a simple and admirable method of inducing anesthesia previous to the continuous use of ether.

Nitrous oxide is not used as often as the author would like to see it first because the supply is scanty and irregular and second because the average anesthetist in military hospitals fights shy of it. The anesthetic of choice for continuous work is ether and with certain reservations and precautions the author's preference is the open method following these details:

- 1 An injection of morphia 1/4 gr. and atropine 1/100 gr. less than half an hour before operation
- 2 A small piece of Gamgee tissue with a hole in it around the nose and mouth
- 3 Schimmelbusch's mask covered with 12 to 15 layers of gauze
- 4 In most cases it is better to partially induce the anesthesia with a mixture or a Clover's inhaler in many cases the author employs ethyl chloride on the open mask
- 5 The metal drop flask of McCardie is recommended

6 The use of Hewitt's open air way tube or a smaller or softer tube passed about five inches down the nose which the author now employs in almost every case.

In cases of chronic shock morphia may advantageously be used up to the limit of dosage but in cases of sepsis malaria or other heart trouble morphia should be avoided. In these cases one should avoid all but the most diluted doses of chloroform. As little anesthetic as possible should be given. Anything like asphyxia should be avoided by diluting the vapor very freely. For this purpose oxygen given by itself or bubbled through the anesthetic is very useful.

In intracranial cases morphia is usually unnecessary as the patient is often in a semi comatose or dazed condition. For this reason also very little anesthetic is required. The author prefers chloroform it being desirable to limit the venous congestion so far as possible. He administers it by passing a small stream of oxygen through a Junker's bottle leading the mixture down the nose through a soft tube.

The mortality arising from operations of the empyema type is rather heavy. The chronic types seen in the home hospital are particularly bad subjects for anesthetics and without doubt they ought all to have some form of artificial respiration such as the intratracheal method. These cases should be concentrated in a few of the better equipped hospitals where this method is available. Failing this chloroform and oxygen should be given gently through a Junker bottle.

In cases of spinal injury where the patient

frequently lies face downward and avoidance of venous congestion is desirable oxygen and a mixture from a Junker's bottle is advisable.

Orthopedic surgery might be expected to be a special field for the use of intraspinal methods but this surprisingly enough is not the case. Nitrous oxide requires skill to hit upon the precise moment at which the fullest possible degree of relaxation is obtainable. The average cases do well enough with ether but it must be given without a trace of asphyxia so that there is as little congestion of the veins as possible.

In plastic surgery troubles arise from the presence of blood in the mouth and pharynx from the necessity of getting out of the way of the operator and from the difficulty in manipulating the anesthetic when the jaw is wholly or partly fixed or is unduly mobile. There is no other operation in which the anesthetist can be of so much real assistance to the surgeon. In most cases exceptional methods will have to be employed such as (1) the intra tracheal method (2) the intubation method of Kuehn (3) the oil rectal method of Gwathmey (4) anesthesia induced with the patient sitting bolt upright by means of a nose tube conveying oxygen and the anesthetic. Either plan may be supplemented by the use of suction apparatus in the mouth.

ALBERT EHRENFRIED

#### Phillips H. R. Apparatus for Administering Oxygen with Ether and Chloroform. *Proc Roy Soc Med* 1917 XI Sect Anesth 13

Phillips describes an apparatus for administering oxygen in combination with ether chloroform or both. An oxygen cylinder is connected with a three bottle apparatus. Valves control the passage of oxygen through the bottles which contain respectively chloroform ether and water.

Experience with the use of this method in nearly 100 cases gives evidence of (1) simplicity (2) economy (3) absence of cyanosis and (4) infrequency of postanesthetic vomiting.

ALBERT EHRENFRIED

#### Scott A. C. Local Anesthesia in Major Surgical Operations. *Texas St J Med* 1917 XIII 269

It is not necessary to apply the anesthetizing agent directly to the tissues to be cut. It may be applied entirely outside the line of incision in such a manner as to secure good anesthesia and maintain it until after the completion of the operation. This is accomplished in two ways (1) by thorough infiltration of the skin and subcutaneous tissues on the proximal side of the proposed line of the incision near but not necessarily within such a line or (2) by infiltration of skin and subcutaneous tissues in two lines an inch or more apart between which the incision is made.

To help maintain the anesthesia adrenalin is used in the solution with the advantage of reducing local bleeding during the operation.

has not found the method satisfactory. Wounds are not cleansed as rapidly as claimed and often there are peripheral abscesses observed on the lower leg. On the patients of the ether. He prefers therefore to use magnesium chloride which is rapid in its action and is not harmful to the tissue. It is also easily prepared.

In eight to ten days an arrest of suppuration is obtained and within a few days a condyloid suture can be undetaken. The results of 450 secondary sutures gave only 20 failures. W. A. BREWER.

**Le G and Colo Fixation of Tissues and Primary Suture**  
(F. te l n t t t p m t )  
B l l t m e s d l d p o 7 l (

Some time ago Le G. reported his initial work in the coloration of contused wounds by a solution of methylene blue in toluene as a guide to resection to be followed by primary suture. The present report gives further experimental and statistical results.

He has altered his solution. Instead of using a 40 per cent commercial solution of formalin he now uses a 20 per cent solution. The quantity of blue has also been reduced from 0.5 per cent to 0.25 per cent. With the revised method the effect previously observed on the blood vessels is no longer observed. Although lesions still exist to some extent.

Success is found to attend necrotic treatment of all tissue destined to necrosis. In antiseptic treatment it permits the primary suture of a wound but resection of the contused tissues permits it. The color fixation of contused tissue has for its object the careful and exact resection of all contused tissue and experimental evidence has shown it capable of effecting this. The technique of injecting the tissue is given.

The present statistics of Le Grand comprise 19 cases with no failure. Of the 79 cases were wound of the soft parts 67 were osteotomies these latter giving 7 failures. 49 cases were fractures proper.

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Proc. R. Soc. Med. 1917. 5. 1. Anæsthesia.

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- 1 An injection of morphia 1/4 gr. and atropine 1/100 gr., less than half an hour before operation.

- 2 A small piece of Gamgee tissue with a hole in it around the nose and mouth.

- 3 Schimmelbusch's mask covered with 12 to 20 layers of gauze.

- 4 In most cases it is better to partially induce the anaesthesia with a mixture or a Clover's inhaler in many cases the author employs ethyl chloride on the open mask.

- 5 The metal drop flask of McCordie is recommended.

- 6 The use of Hewitt's open air way tube or a smaller or softer tube passed about five inches down the nose which the author now employs in almost every case.

In cases of chronic shock morphia may advantageously be used up to the limit of dosage but in cases of sepsis malaria or other heart trouble morphia should be avoided. In these cases one should avoid all but the most diluted doses of chloroform. As little anaesthetic as possible should be given. Anything like asphyxia should be avoided by diluting the vapor very freely. For this purpose oxygen given by itself or bubbled through the anaesthetic is very useful.

In intracranial cases morphia is usually unnecessary as the patient is often in a semi comatose or dazed condition. For this reason also very little anaesthetic is required. The author prefers chloroform it being desirable to limit the venous congestion so far as possible. He administers it by passing a small stream of oxygen through a Junker's bottle leading the mixture down the nose through a soft tube.

The mortality arising from operations of the empyema type is rather heavy. The chronic types seen in the home hospital are particularly bad subjects for anaesthetics and without doubt they ought all to have some form of artificial respiration such as the intratracheal method. These cases should be concentrated in a few of the better equipped hospitals where this method is available. Failing this chloroform and oxygen should be given gently through a Junker bottle.

In cases of spinal injury where the patient

frequently lies face downward and avoidance of venous congestion is desirable oxygen and a mixture from a Junker's bottle is advisable.

Orthopedic surgery might be expected to be a special field for the use of intraspinal methods but this surprisingly enough is not the case. Nitrous oxide requires skill to hit upon the precise moment at which the fullest possible degree of relaxation is obtainable. The average cases do well enough with ether but it must be given without a trace of asphyxia so that there is as little congestion of the veins as possible.

In plastic surgery troubles arise from the presence of blood in the mouth and pharynx from the necessity of getting out of the way of the operator and from the difficulty in manipulating the anaesthetic when the jaw is wholly or partly fixed or is unduly mobile. There is no other operation in which the anaesthetist can be of so much real assistance to the surgeon. In most cases exceptional methods will have to be employed such as (1) the intratracheal method (2) the intubation method of Kuehn (3) the oil rectal method of Gwathmey (4) anaesthesia induced with the patient sitting bolt upright by means of a nose tube conveying oxygen and the anaesthetic. Either plan may be supplemented by the use of suction apparatus in the mouth.

ALBERT EHRENFRIED

#### Phillips H R. Apparatus for Administering Oxygen with Ether and Chloroform. *Proc Roy Soc Med* 1917 vi Sect Anæsth 13

Phillips describes an apparatus for administering oxygen in combination with ether chloroform or both. An oxygen cylinder is connected with a three bottle apparatus. Valves control the passage of oxygen through the bottles which contain respectively chloroform ether and water.

Experience with the use of this method in nearly 100 cases give evidence of (1) simplicity (2) economy (3) absence of cyanosis and (4) infrequency of postanæsthetic vomiting.

ALBERT EHRENFRIED

#### Scott A C. Local Anaesthesia in Major Surgical Operations. *Texas St J Med* 1917 xii 269

It is not necessary to apply the anaesthetizing agent directly to the tissues to be cut. It may be applied entirely outside the line of incision in such a manner as to secure good anaesthesia and maintain it until after the completion of the operation. This is accomplished in two ways (1) by thorough infiltration of the skin and subcutaneous tissues on the proximal side of the proposed line of the incision near but not necessarily within such a line or (2) by infiltration of skin and subcutaneous tissues in two lines an inch or more apart between which the incision is made.

To help maintain the anaesthesia adrenalin is used in the solution with the advantage of reducing local bleeding during the operation.

After the skin and subcutaneous tissues have been incised down to the muscle layers, the operator should anesthetize the deep fascia or aponeurosis giving special attention to the nerve trunks on the side of the wound from which they come when possible to locate them. The abdominal fascia or muscular sheaths having been infiltrated and incised, the operation is soon down to the subperitoneal tissue. This is the most sensitive tissue to be dealt with and is not easily anesthetized if the operator is careless, unskillful or hasty.

The peritoneum is anesthetized by passing the point of the needle well into the transverse fascia posterior or beneath the rectum near the center of the wound.

When the abdominal wall is properly anesthetized and a sufficiently large wound made to work without stopping, the right action almost any kind of operation may be satisfactorily done without the abdominal cavity if it does not require much traction upon the mesentery or the separation of firm adhesions.

The preferred solution for local anesthesia in the Temple Clinic is one twentieth of one per cent solution of novocaine containing about three minims of adrenalin solution to the ounce which is added at the time of operation. For this purpose sterile adrenalin solution is kept in 1 cc. amber glass ampules.

EDWARD L. CORNEL

#### Sollmann T. The Comparative Efficiency of Local Anesthetics. *J. Am. Med. Assn.* 1911, 8.

Sollmann has conducted a number of experiments to ascertain the comparative efficiency of local anesthetics. He divided his work as follows:

1. Intracutaneous method of infiltration and injection anesthesia using cocaine, novocaine, tropocaine, alypin, hydrochloride, beta eucaine, hydrochloride, quinine, hydrochloride, apothesis, antipyrine, and potassium sulphate.

2. Sensory fibers of the trunks using cocaine, novocaine, tropocaine, hydrochloride, alypin, hydrochloride, potassium chloride, quinine, hydrochloride, and antipyrine.

3. Motor fibers of the trunks using cocaine, novocaine, tropocaine, hydrochloride, alypin, hydrochloride, potassium chloride, quinine, hydrochloride, and antipyrine.

He summarizes his five groups as follows:

1. For the anesthesia of mucous membrane cocaine, beta eucaine, alypin, and tropocaine are the most useful. Quinine, hydrochloride is fairly act. Apothesis, novocaine, and potassium chloride are relatively inefficient. Alkalization increases the efficiency from two to four times. The solution of the anesthetic salts may therefore be mixed with an equal volume of 0.5 per cent sodium bicarbonate with full efficiency and with a saving of one half of the anesthetic. The mixtures however do not keep well and should be recently made. The addition of epinephrine does not increase the efficiency and is probably useless.

2. For infiltration and injection anesthesia cocaine, novocaine, tropocaine, and alypin are about equally efficient. Beta eucaine and quinine, urea hydrochloride are intermediate. Apothesis and potassium sulphate or chloride are relatively inefficient. The efficiency is not increased by alkalization. Epinephrine greatly prolongs the action and should always be added except to tropocaine. The anesthetic action of potassium sulphate or chloride is not great enough to be of real value. A one per cent solution would be equivalent to about 0.15 per cent of cocaine or novocaine. However, it may well be used in place of sodium chloride for making anesthetic solutions as suggested by Braun.

Several of the synthetic anesthetics can completely take the place of cocaine. In view of this fact it could be feasible to prohibit entirely the importation, manufacture, sale and use of the habit-forming cocaine except for scientific purposes.

G. W. HOCHREIL

#### SURGICAL INSTRUMENTS AND APPARATUS

##### Adam, J. L. A Simple Method of Mechanical Fixation of Fracture of Long Bone. *B. M. J.* 1911, 2.

In the case of broken bone it is most desirable to have a method of fixation applicable to compound as well as simple fractures. Bone grafting in the presence of sepsis is almost doomed to failure. The author calls attention to some of the disadvantages of plates, metal screws, etc.

The bone clip which the author describes is designed to partially encircle the fragments and press them to together, favoring rapid healing. It is made of tempered spring steel and exercises continuous elastic pressure on the fragments of bone within its grasp. Not more than two thirds of the circumference of the bone should be grasped by the clip. The strength of the spring is sufficient to counteract late acting forces tending to displace the fragments and the teeth by which the bone is gripped will resist a force acting in its long axis. All that is necessary after the clip is in position is immobilization by splint to avoid violent movement and no other means need be applied to the limb. A transverse fracture can be quite well secured by a single clip, or by one which is made especially for the purpose.

A line incision is made down to the seat of the injury, the long fragments are identified and the wound is such that they require to be fitted so as to obtain perfect position is noted. In oblique fracture, forcible extension with rotation of one or the other fragment usually satisfactory, but with jagged and irregular bone surfaces, protrusion of the ends through the wound and then drawing them into position by manipulation is the better plan. After the bone ends have been gotten into perfect apposition in the open limb by means of a special instrument or introduced as passed around the bone at the seat of fracture and adjusted until it holds the fragments.

in a firm grip. The spikes or teeth in the clip obviate the need for screws or nails and they allow a small space between the metal and osseous tissue so that pressure necrosis is hardly to be feared and there is no tendency for the clip to become buried in the bone.

The author has recently operated upon six cases of simple fracture of the femur with a perfect result functionally and anatomically and no shortening except in one case. In the exceptional case supuration occurred and union was delayed however satisfactory alignment of the femur has been maintained. The author feels that the use of the clip may be extended to compound fractures.

The clips fit best over round bones but they have been of considerable service in such bones as the tibia. The clips are easily removed should occasion arise later by the introducer which is made in two pieces or by using the point of a Lane retractor as a lever to lift up the spring and dislodge it from the bone.

The author recently employed one of the flanged clips with good results in the case of a transverse fracture of the femur in a child the flange being secured to the upper fragment with a clip having no teeth. He feels that these clips are worthy of trial

in cases of compound fracture due to gunshot wound the cases being selected with due reference to the accessibility of the bone ends and the clips applied within a short time of the receipt of the wound. They are not open to the same objection as Lane's plates in that they are not likely to carry infection before them and produce extensive osteitis. They hasten the repair of the fractured surfaces even in the presence of infection and treatment of the wound by Carrel's or similar methods would in no way conflict with their efficiency as an internal splint.

Oblique fractures are most amenable to the clip method of fixation but existence of comminution probably no bar to success. When there is a considerable gap in the bone some external extension apparatus is required to retain the normal length of the limb and clips are not suitable.

The clips are made of spring steel and in sizes ranging from one half to one and one half inches in diameter. Those suitable for oblique fractures are provided with teeth turned over from the edge to grip to the cortex of the bone. It is desirable to use the smallest clip which will embrace the bone so as to secure the maximum degree of elastic pressure. V. C. HUNT

## SURGERY OF THE HEAD AND NECK

### HEAD

Salinari S. War Wounds of the Head (La ferita d'arma da fuoco del capo). *Riforma med.* Napoli 1917 XXXI 1053

Salinari introduces his article by referring to the protection afforded by the new helmets against head wounds. Reverchon for example reported that in 1915 every third wound was a head one. Chevassu found that of 20 men with cranial injuries 13 of which had carried the helmet and 7 had not 5 of the wounds in the latter were fatal while none of the helmet carriers died.

Salinari's statistics comprise 15,000 wounds of which 1,827 were head wounds. Five per cent of the wounds were facial and seven per cent or 1,079 cranial. Of these 1,079 cranial wounds 583 were soft part wounds 325 involved the cranial bones and 171 were meningeal and encephalic.

Of 748 facial wounds 257 were of the soft parts.

Experience has taught the author to distrust wounds which apparently involve the soft parts alone as he has seen many such with later severe cerebral developments. The slightest evidence of a fissure or depression in the bone should be sufficient indication to subject the patient to a thorough X-ray examination.

The author discusses the pathologic anatomy of cranial lesions especially of those involving the meninges.

As regards symptoms in a great many cases there is very little pain or general disturbance at first and even in a few days after a trepanation the recovery is rapid.

The favorable results which the author has observed to follow the immediate operative treatment of cranial wounds and the end results lead him to acquiesce in Oehler's assertion that the triumph of war surgery is in the treatment of cranial wounds. Only two circumstances ought to deter one from intervention namely an insufficient surgical equipment and the patient's condition which would include traumatic shock.

The author deals in detail with the operative treatment of different types of lesions of the head. In cases where there were symptoms of irritation or of meningo-encephalic lesions but without clear evidence of a skull injury a few days were allowed to elapse before operation. Observations were made on the spinal fluid and according to the findings and the general progress a trepanation was done or not. Then if the dura was found intact nothing beyond decompression and surgical clearance was done the dura being left intact.

The general rule in other cases and with tangential wounds no matter what the state of the bony lesion was to open up the dura and relieve internal pressure.

In penetrating wounds with retained projectiles the conduct followed depended on the case. The



most exact and precise taking localization possible of the projectile was made radiographically. The route of approach as then studied before attempting traction so as to spare the patient the disastrous effects of a more or less blind search for the projectile. Only when the projectile could be reached without undue manipulation was its extraction attempted. Where there was no interference to the wound by means of drainage was done no attempts were made to cause the projectile to migrate toward the point of entry. Bier's gastric suggestions resulted ultimately in increasing the local symptoms of suppuration etc.

The author deals in detail with the technique of searching for and the best method of extracting bone fragments from the cranial cavities.

The inter-l wound drain is never systematically sutured owing to the fear of later infective complications. Many patients in fact who seemed out of all danger developed classical meningitis or except for a few symptoms and succumbed in varying periods of time.

Generally paralytic motor symptoms disappear after operation even when the lesion is very extensive. But in some regions they persist as well as certain sensory paralyses. Rare phenomena generally disappear within twenty-four hours.

Cerebral hernia has always been the sign of a deep seated infection. Herniation of itself is not an absolute indication for intervention. The author uses compression only according to the method of Delagen, by uterine tubes of the neighboring skin loosely over a disc of gauze placed on the lesion. With patience this succeeds in reducing the hernia by keeping the patient's head high. A lumbar puncture is made if the e is much headache. The trachea can be removed after the disc renewed after eight or ten days.

The author has never seen a cranial tumor spontaneously disappear. In cases where reduction is not obtained under treatment the polypoid mass tending to become after an aplastic necrosis the author uses the thermocautery to remove it.

The final part of the author's article deals with a consideration of plastic repair of lesions in cranial substance.

Owing to the ultimate complications which may arise as well as the difficulty in following the course of the operated patients though the various hospital the author thinks it useless to give any conclusive statistics with regard to results.

W. A. BRENAN

Si b P R P f Rate nd Bl d P re Ob  
servati n an Aid in the T ext m nt of  
Head Trauma t S g Phil 98 L 5

The author's a result of his observations on a series of 6 cases of fracture of the skull resulting from acute head injury lay great emphasis upon the pulse rate and arteriole pulse and the symptoms being used to determine the degree of encephalitis

on the vital center and the necessity for operative interference.

Cushing's experiments upon dogs has shown that by increasing the intracranial pressure equal to that of the arterial pressure the resulting anæmia stimulates the vagus center thereby slowing the pulse. At the same time the vasomotor center stimulates causing a rise in arterial pressure sufficient to again restore circulation to the brain. By gradually increasing the intracranial pressure the physiological pulse will cause a rise of arterial pressure to a point two or three times that of the normal pressure.

Fracture of the skull are often accompanied by an increase in intracranial pressure and furthermore this tension frequently rises to such a height that the cerebral vessels are compressed with the resulting anæmia and death. In many instances the cause has been striking similarity in the symptoms preceding death in cases of fracture and those produced in animals by increasing the intracranial pressure. (Of course has shown that with the increase in stupor the cerebral gradual increase in the blood pressure coincides with the pulse rate. In the final stage the cerebral is astoruous or perhaps a Cheyne-Stokes breathing the temperature rises the reflexes disappear and the patient becomes relaxed. The blood pressure gradually falls to zero and the respiration ceases. The automatic mechanism has been unable to maintain the blood pressure above the normal arterial tension and supply sufficient blood to the respiratory center.)

The author divides the cases of head trauma into three groups.

The high at times any evidence of intracranial pressure. In the case of surgical interference no indication unless fragment of bone is depressed.

The cases show signs of definite increase in intracranial pressure. In the case of observation of the blood pressure and pulse rate are most useful in determining the degree of intracranial pressure and an indication as to whether operative interference is necessary. In nineteen of the author's cases operation was deemed necessary and of the ten made good recovery. Two of the deaths were due to pneumonia and one to meningitis.

3. Case presentation of advanced medullary compression of the spinal cord. There is evidence of level at the continuation of the brain. The three of the author's cases were included in this group. In many of these the regulation of a meter measure has been observed while in others the applied decrease in arterial pressure and increased pulse rate indicated that the automatic mechanism making a feeble effort to supply the bulbar center. Of the cases the patient died of death. The relief was repeated upon with the recovery. The subtemporal decompression was the operation of choice in relieving pressure symptoms.

GATEWOOD

**Morestin H Shell Wound of the Face Repair Operations** (Plaie de la face mutilation du nez de truction des branches montantes des maxillaires supérieures mutilation de la paupière en saigne droite perte des deux yeux opérations réparatrices) *Bull et mém Soc de chir de Par* 1917 xliii 1397

In the case reported by Morestin a piece of shell had torn away the right lower eyelid the right eye had burst the root of the nose was carried away and the two ascending branches of the maxilla were smashed in bits especially on the left side There was a large suborbital orifice and vision was completely lost

The patient was under disinfection treatment from the end of June until September Repair of his disfigurement was then begun by excision of a tumorous fragment of the lower palpebral conjunctiva on the left side The palpebral edges were freshened and blepharorrhaphy done The eye was definitely closed

In October the bridge of the nose which was embedded in the fossa was freed repaired and sustained in its required position by supports passed through the nostrils

Late in November the right eyelid was treated by strip of suborbital skin Whatever was left of the edges was freshened and a blepharorrhaphy again done

In December the sixth and seventh left costal cartilages were removed for use in reconstructing the nose and to fill the breach in the center of the face After extensive skin elevation a ring of cartilage was placed vertically under the skin of the forehead after making a transverse incision which was to serve as the axis of the strips for the reconstruction of the nose This was placed slightly to the right of the median line To the right and left other pieces of cartilage were installed to serve as supports to the nose and the lost parts of the upper maxillaries The losses being asymmetrical the flaps had to be planned accordingly

To the right of the axial stem which had been sutured to the deep face of the skin two large pieces of cartilage were fixed and one to the left to be trimmed later

On February 1 the contour of the very extreme skin strip was traced and the incision sutured The object was to obtain an autonomous strip and develop circulation from its pedicle February 21 the strip was detached from its deep bed On the following days it was gradually subjected to torsion a few degrees each day The pedicle was to the left and at the level of the inner extremity of the eyebrow and the adjacent part of the orbit The strip descended bit by bit in front of the right brow and orbit and finally before the nasal breach

On March 24 the junction of the strip with the nasal ridge was made April 1 it was united to the right edge of the breach On April 16 the left side was united and the breach was entirely closed In order to give definite form to the nose different

retouchings were made between May and December The results are very good The reconstructed nose is quite solid There is no looseness between the cartilage pieces transplanted and the bone to which they are united The skin which covers the root and bridge of the nose and part of the sub orbital region has united without inequalities or depressions The nares are free and largely permeable to respiration In short the patient has neither inconvenience nor pain There are seven illustrative photographs

W A BRENNAN

**Aymard J L Nasal Reconstruction with a Note on Nature s Plastic Surgery** *Lancet* Lond 1917 cxviii 888

While methods for reproducing the complete nose have in the past been discussed in textbooks the causes for failure are seldom dealt with and details of the work are deficient

Almost the greatest difficulty presenting itself is the fact that where the nose has been destroyed by war injury the scar tissue surrounding the lost organ has to be utilized for the junction of the new flap The most common cause of failure is probably due to the fact that the nasal cavity is not an ideal aseptic one at any time but is rendered much more unhealthy by damage to one or more sinuses and their surrounding tissues No plastic operation of any kind can possibly suffer by reasonable delay

The flap should be taken if possible from the site likely to lead to the least ultimate disfigurement The lining of the flap should take some form other than scar tissue The new organ should as much as possible correspond with the original The supporting framework should simulate the original The bed area for the new organ should be most carefully prepared The author has used a new flap method taking a long pedicle flap with its base near one clavicle and forming the nose upon the chest on the opposite side Keeping the head slightly bent upon the chest for fourteen days If this chest flap fails he uses two flaps one from the forehead and an alar flap from the cheek

The necessity for some form of covering other than scar tissue internal to the nasal cavity is generally admitted and the author has endeavored to overcome this difficulty by removing the entire periosteum In attempting to obtain resemblance to the former organ it is a distinct advantage to have a skillful sculptor

The author is in favor of an all cartilage framework Cartilage will attach itself to bone exactly as will bone to bone and the resistance of cartilage to mild sepsis is an argument in its favor also cartilage remains constant where bone unattached is prone to disappear

In the preparation of the skin area upon which the new nose is to be embedded it is advisable to undercut the skin and tissues in order to contract the opening and bring healthy new tissues into the region for this purpose

In the preliminary treatment it is essential to



symptoms monoplegias dissociations at times very delicate

Chatelin presents solely a study of cases of head injury which have recovered from the primary effects of the wound and which can be subjected to a minute neurological examination. It is limited to the late results, i. e. to those which persist several weeks after receipt of the wound and in which a careful clinical study can be carried out.

In the examination of the patient great stress is placed on a careful interrogation of the wounded man as to the exact circumstances under which he received his injury and the first symptoms noted subsequent events following the injury surgical operations undergone and present symptoms.

The actual condition of the wound is to be carefully noted especially as to the cutaneous scar healing loss of bony substance and depth of involvement.

Cranio-cerebral topography is next discussed in its relation to localization of cranio-cerebral injuries followed by neurological examination of the patient in regard to motion reflexes sensation coordination equilibrium gait speech and special senses. The examination is completed by lumbar puncture and radiography.

The subjective symptoms common to all wounds of the skull are presented.

A detailed discussion of wounds of the various regions of the brain with short discussions of meningitis abscess epilepsy and foreign bodies is given.

DeMartel's discussion of wounds of the skull though shorter should be of more particular interest to the surgeon. The following is a summary of the more important points brought out.

The importance of protective measures directed to minimize the gravity of wounds of the skull such as wearing of the steel helmet keeping the hair cut short and scrupulous cleansing of the scalp after receipt of the wound is pointed out.

It is important that hospitalization of the wounded man should be in a place where he can be operated upon and followed by the same surgeon for several weeks. There is generally no urgency about operating on cranial wounds as is the case with wounds of the digestive tract or circulatory system. If the abdomen like the skull contained only solid organs instead of hollow viscera filled with septic matter the same would apply to it. On the contrary there is a distinct advantage in postponing operation on skull wounds for a few days in order to allow protective adhesions to form and thus limit the field of infection. Wounds of the brain gain everything by being evacuated at once to a hospital where they can remain for several months if necessary under the observation of the same surgeon who has operated. Immediate operation on a penetrating wound of the skull especially if carried out by the usual method of enlarging the orifice with rongeur forceps can hardly fail to aggravate and disseminate the infection by breaking down the protective adhesions which limit the traumatized area.

For three years the author has performed all cerebral and cerebellar operations under local anesthesia. The advantages of this over general anesthesia lie in the fact that the patient can co-operate with the surgeon by modifying his position by making at will movements of forced inspiration and expiration the former diminishing venous hemorrhage and the latter separating the edges of the cerebral wound and furthermore the shock and hemorrhage incident to a general anesthesia are avoided. The anesthetic solution consists of 0.5 per cent novocaine and 0.0005 per cent adrenalin in normal saline.

For the operation if his condition permits the patient is seated astride a chair facing the back with his arms supported on a special rest attached to the back of the chair and his head resting on his arms.

Whenever possible, i. e. whenever the loss of substance of the skull is slight as is most frequently the case the author makes a quadrilateral osteo-cutaneous flap. After injection of the local anesthetic a silk basting suture is placed at the base of the proposed flap in order to insure complete hæmostasis. The author's special hand and power driven instruments for cutting the bone are described in addition to the technique to be employed when only simpler instruments are available.

The advantages of the temporary osteo-cutaneous flap over the usual method of trephining and enlarging the breach in the bone with the rongeur forceps are many. The temporary flap does not leave any trace any deformity always produces a cerebral decompression of benefit to the patient is not the cause of cerebral hernia of mechanical origin as so often follows the classical trephining operation. It gives a very broad view of the lesions and can be reopened as often as necessity demands. Enlargement of the bony opening with the rongeur presents none of these advantages but is absolutely indicated every time the bony destruction is considerable and does not allow of an osteo-cutaneous flap.

If at operation the dura is found to be intact it should not be opened under any pretext. To open the dura in order to evacuate a hæmatoma or brain pulp resulting from a violent contusion means almost certain infection of a field hitherto aseptic and invites meningitis and encephalitis. If the dura is perforated if cerebral pulp escapes through the opening if the still intact dura is black and immobile if the existence of evadate or an area of softening is proved it is quite logical on the contrary to enlarge the meningeal opening and to evacuate gently and as completely as possible the already infected region. The dura must then be sutured with care except at the place where it was torn. At this point a cigarette drain is placed. Rubber tubes are never used for drainage. In order to empty completely collections of blood softened cerebral substance and splinters without injuring the normal tissue forming the walls of the cavity

it is best to pass the finger gently in all directions under a continuous current of warm saline solution. Foreign bodies of steel are removed by means of an elevator get constructed on the principles of the Hirt compass used in lithotomy.

It is necessary to observe caution in the use of lumbar puncture in the early days of a wound of the skull because of the danger of diminishing the volume of the brain which thus detaches itself from the membrane to which it was adherent. The meningeal space hitherto potential the eby becomes real and it poses itself greatly to infection. Late however lumbar puncture may end great service in relieving intracranial pressure and may be repeated frequently with benefit particularly in cases in process of recovery who complain of headache and vertigo. P H I

**Velter E. Hemostasis by Muscular Suture in Cranial Surgery.** (S. H. M. T. P. L. M. B. D. M. L. H. G. N.) P. 98

Velter calls attention to the great importance and difficulty of obtaining good hemostasis in cranial and cerebral surgery. The method is suggested by British surgeons especially such as Horsley, Saenger and Holme by the application of muscle strips in order to obtain hemostasis of the bone and venous nodule. Consider most effective and satisfactory, and regrets that it has not had wider acceptance and application by surgeons at the present time.

The technique is simple. A piece of any muscle sufficient for the purpose is cut after rapid removal of clot with a tampon. The piece of muscle is placed on the bleeding point and pressed down firmly with the finger or any soft instrument. It adheres in a minute or so and stops the hemorrhage completely. It is applicable only to hemorrhage from the bone or from the venous sinus.

Velter has tried this method in number of cases and has found it a rapid and effective method. W. A. BRE. A.

**Roubert G. Craniotomy Graft and Loss of Cranial Substance.** (P. T. D. B. T. E. L. G. C.) P. 97

Roubert has reported 34 cases of loss of cranial substance by craniotomy grafts according to the method devised by Morel with slight modifications. He has never had any sloughing of the graft and the results as long as they could be observed have been quite satisfactory.

Complete catenization of the wound is awaited three months at least ought to be allowed for. Then the skin is incised around the scar and pediculated strips dissected out. The fibrous scar is directed and the bony edge of the orifice trimmed. A piece of costal cartilage is removed from the patient and sutured to the bone. This is done during the craniotomy the cartilage be

immediately placed in a compress soaked in warm salt solution. It is at once placed in position on the most rigorous aseptic precautions being observed. The peripheral face of the graft is turned toward the brain. The edges which have been shaved do not have to be inserted under the pericranial periosteum. A notch cut on the outside surface of the graft allows it to be easily adapted to the required curvature. The cutaneous strips are then turned and sutured on the graft.

The author says that there is little fear of any ulcer or endocranial proliferation of the graft. A future reduction in its size is more likely. It becomes fixed at the end of three weeks but it is well to keep the patient under observation for six weeks. The patient gets the impression of solidity and the e is no fluctuation at the site of the graft even during the coughing.

The author cannot give a definite opinion as to the ultimate use of such grafts as his cases are only about ten months old at most. More than one piece of cartilage may be used in repairing a defect. W. A. BRE.

**Villard C. Catetion of Cranial Wounds from Surgical Wounds.** (C. T. D. P. L. H. G. L.) A. I. D. 97

Villard thinks that catenization of a cranial wound is not always an indication of recovery. It must be borne in mind that cranial automatism leads to dehiscence lesions which may progress either (1) by the organization of intradural or intracerebral blood clots (2) by cystic transformation of loss of encephalic substance either effected mechanically or by necrosis of cerebral hemisphere or by multiple local encephalitis (3) by latent infection in the vicinity of foreign bodies bone fragments or projectile or even in the thickness of the cortex. Such latent infection may be suddenly awakened and cause late complications (4) finally when a cranial wound shows slow cicatrization with a fistula after delay and suppuration this condition may precede encephalitis.

Of 450 cranial wounds examined the author serves secondary intervention owing to the development of infection was necessitated in 47 cases with a cranial fistula and 14 with encephalitis. In 3 of the 14 projectile wounds other fragments were extracted. If to these be added the secondary operations for epileptic attacks without cerebral infection there is a total of 303 secondary operations in 450 cases of cranial wound.

The difficulty is how that in the immediate treatment of cranial wound mechanical disinfection of the wound and extraction of foreign bodies must be practiced early and as completely as possible.

In the treatment of secondary complications whether infective or not a continuation of the treatment must be assured in special surgical units. There will obviate many errors both in the treatment

itself as well as in the disposal of the wounded. There should be proper co operation between the first aid station and the territorial hospital where such cases of head injuries are sent.

W A BRENNAN

Dandy W C and Blackfan K D Internal Hydrocephalus *Am J Dis Child* 1917 vii 4 4

Twenty six cases of internal hydrocephalus have been studied 15 of the obstructive and 11 of the communicating variety. These cases have been studied with intraventricular and intraspinal injections of phenolsulphonophthalein.

Postmortem examinations have demonstrated an obstruction in every case in which an obstruction has been shown clinically by this test. The obstruction may be a congenital malformation or an inflammatory process or tumor and may occur at any part of the ventricular system but usually at the aqueduct of Sylvius or the foramina of Luschka and Magendie.

In all cases of obstructive hydrocephalus there is practically no absorption from the ventricles and frequently a normal absorption from the sub arachnoid space. Hydrocephalus results because the fluid is mechanically prevented from passing from the ventricles where the fluid forms to the subarachnoid space where it is normally absorbed and where only it can be absorbed.

Communicating hydrocephalus is caused by a barrier of adhesions at the base of the brain which mechanically prevents the cerebrospinal fluid from reaching the cerebral subarachnoid space where the greatest part of absorption normally takes place. The various cisternæ or centers for the distribution of cerebrospinal fluid are more or less obliterated by adhesions.

Absorption of cerebrospinal fluid is a general process from the entire subarachnoid space and communicating hydrocephalus results because only a fraction of this area can be utilized for absorption.

These pathologic findings harmonize with the clinical phenolsulphonophthalein tests which show a greatly diminished absorption from the sub arachnoid space.

Obstructive and communicating hydrocephalus is therefore essentially the same and in reality each is due to obstruction. In the obstructive variety the obstruction is in the ventricular system in the communicating variety the obstruction is in the subarachnoid space.

Obstructive hydrocephalus may by operation or spontaneously change to communicating hydrocephalus or the reverse may occur spontaneously. Careful studies with the phenol sulphophthalein test will indicate these possibilities.

Meningitis is by far the greatest etiologic factor in both types of hydrocephalus and probably always causes the communicating variety. This may be either prenatal or postnatal. The meningitis may be of a very mild grade and easily overlooked.

There is a definite relationship between a menin-

gocele and internal hydrocephalus both usually result from the same cause. The removal of a meningocele may aggravate a fairly well balanced or even arrested case of internal hydrocephalus. This probably results from a diminution of the absorbing area.

Spontaneous recovery of internal hydrocephalus sometimes occurs. The surgical treatment of internal hydrocephalus has now a definite anatomic basis and hopeful prospects. The operative results of a series of cases will appear in a subsequent communication.

EDWARD L CORNELL

Gross G and Houdard L Primary Suture of Craniocerebral Gunshot Wounds (La suture primitive des plaies crâniocébrales par projectile de guerre) *Bull et mêm Soc de chir de Par* 1917 xlii 2188

The Interallied Surgical Conference last May concluded that in favorable cases where the dura was intact reunion could be made by first incising and if the dura mater and brain were involved the craniocerebral wound could be treated by primary or secondary suture after sterilization. The authors think that primary suture of such wounds should always be practiced. Their practice is in all cases where the dura is intact to suture at once. When the dura is injured and there is no projectile after clearing and cleansing the area they suture if such is anatomically possible. Generally they find that the removal of cranial projectiles has more disadvantages than advantages. In case of very large projectiles operation is useless. The extraction of very small projectiles is more harmful than otherwise.

The authors have treated 4 very severe craniocerebral lesions by primary suture. These were discharged in from forty to sixty days although there was more or less abundant loss of cerebral matter in these cases on their arrival in the author's ambulance service.

The total results of the sutured head injuries are tabulated by the authors. There were in all five failures in 279 wounds treated.

The table shows 114 lesions sutured in which the dura was intact. Of these there were 107 recoveries and 7 deaths. Four of these deaths were due to shock or other complications. Sixty three cases of craniocerebral wound were sutured with 42 recoveries and 21 deaths. Ordinarily a large number of the craniocerebral wounds develop abscesses or encephalitic complications before the third week or by the end of the second month.

Suturing prevents such complications. Two thirds of the authors' cases left the station cured in less than sixty days. The authors claim that primary suture guarantees against secondary infection which is the direct cause of the late complications for the same reasons the later developments of cranial wounds are much diminished.

The only contra indications to immediate suture admitted by the authors are very extensive loss of

skin and cranium and the general state of the patient

Since the author adopted primary suture in the case of cranial wound their operative mortality has fallen from 56 to 33 per cent

W A BRENNAN

# Payr Elderwood Drains for Cranial Wound

D I I d W I I 0 7 1 1 N 6

Payr of Leipzig thinks that at elderwood drains are admirably adapted for use in cranial wound on account of the lightness the character of the internal and external surface their consistency and hygienic quality

Glass and metal tube are too heavy and too rigid for such purposes rubber drains slip out of position Capillary ink drains take up the crevices and the cerebral necrotic matter

Payr says that elderwood drains are cheap and easily made and diffuse the drainage and prevent the disadvantages

They have practically no weight

The hollowed out center can be brought to any degree of smoothness desired and can be polished time after time and used again

3. Tube of any length thickness etc can be made of any kind

4. The material is easily obtainable and costs almost nothing

5. By boiling or steaming the tubes become hygienic and can be adapted to the shape of any wound fissure

6. They are very hygienic and easily become adherent to the cerebral substance so that they do not have to be removed By soaking in liquid paraffin melted a they can be made impervious The rubber tube unite in them the tubular and capillary principles of drainage

When the wound is large even after these means may be used The weight will be practically nothing on the cerebral matter The author never observed necrosis from the use of these drains when the tubes were used

The author treated six cerebral abscesses of various localities and age the drainage all of which recovered

W A BRENNAN

# Olsen to M An Intestine Pontine Syndrome

V I M J 9 7 6

The case here reported is of a longshoreman hospitalized to this condition as perfectly well He suddenly stricken two years ago with paralysis in the right arm He believed that the cause was also paralysis of the right face The cause was a loss of consciousness and he did not fall For six weeks later he fell to the ground in an unconscious condition and remained so for a few hours When he regained consciousness he found that his right leg was paralyzed The paralysis of the leg was flaccid while that of the arm was spastic

He developed peculiar mental symptoms of distrust suspicion condemnation toward his associates

and moodiness There was no memory or intelligence defect and no signs of apraxia aphasia alexia agaphia amnesia no asterognosis All cranial nerves except the seventh and eighth were functioning properly The pupils reacted to light and accommodation There was no nystagmus

In the distribution of the facial nerve it was found that the left eyebrow was on a lower level than the right There was a distinct drawing of the angle of the mouth to the right Taste reactions to bitter sweet sour and salt were absent in the entire two thirds of the left side of the tongue The chief sensory pathway of the eighth nerve was considered barely affected Hearing in the left side was gone

Reaction of degeneration as present in the muscle supplied by both branches of the facial the electrical reaction here was undoubtedly nuclear or at the cell body of the motor fiber The lateral fillet on the same side must also have been involved at or near its decussation The electrical reaction of Pombreg sign

The reflexes showed an increase in the right triceps biceps and patellar over the left side The abdominal epigastric and cremasteric reflexes on the right were absent The right ankle jerk as more active than the left and there was a distinct Babinski reflex and clonus on the right side

The reflex sensation of the tongue or uvula There was a distinct loss of power in the muscles in the left side of the face the right arm and the right leg more marked in the latter Sensation in the right arm and leg showed a marked diminution to touch discrimination and a diminution particularly of light touch as tested by cotton wool The cause marked hyperaesthesia to pain and temperature in the right leg below the knee Sensation in the face was perfectly normal on both sides Position sense was normal and vibration also appeared to be normal Pressure sense was diminished slightly in the right half of the body

It was concluded that this case presented a pontine lesion occurring at the level of the nucleus of the seventh nerve and the decussation of the lateral fillet involving the left side also the median fillet to a slight extent the spinotthalamic tracts which at this level are very close to the median fillet and involving finally the pyramidal tracts and the nuclei of the pons It will be remembered that the nuclei of the pons give rise to those fibers of the middle peduncle of the cerebellum which go to the cerebellum of the same side all connection of the cerebellum being uncrossed this might account for the ataxia in the left or sound leg Another possibility should be considered in this connection for the ventrospino cerebellar tract is very close to the lateral fillet at this point and it is possible that the ataxia in the left leg can be explained by an involvement of this tract Sections through the level of the seventh nerve nucleus often show this tract as it

goes upward and outward to reach the superior peduncle of the cerebellum. The lack of tone in the right leg may possibly be accounted for by the break in the efferent path from the pallidum to the cerebellum which is crossed. The loss of taste in the left tongue is obviously explained by an injury to the pars intermedia of the seventh nerve. The root fibers of this portion of the seventh must be involved because the posterior third of the tongue retains the sensation of taste which is supplied by the nucleus of the fasciculus solitarius which contains the sensory portions of the ninth, tenth and seventh nerve nuclei. At this level it would be impossible to reach this nucleus.

M A BERNSTEIN

Bell W B Experimental Operations on the Pituitary *Quart J Exp Physiol* 1917 xi 77

The author carried out a series of operations in order to investigate (1) the general effects produced by pituitary lesions (2) the effects of these lesions on the genitalia (3) the effects produced by the pituitary lesions on the other organs of internal secretion.

Paulesco in 1908 evolved the operative procedure known as the bitemporal route which has materially simplified the technique and has led to more reliable results. The author's researches concern themselves in testing the correctness of previous experiments carried out by Paulesco and by Cushing and in attempting to gain further information concerning the experimental pathology of the pituitary. Reliance as to the structural conditions present was placed only on the results of complete histological examinations which included the examination of the pituitary tissues removed and the site of removal also of the genitalia before and after operation and of the other endocrine organs after the production of the pituitary lesions.

The operative technique used by the author is described in detail. Twenty-seven female dogs were subjected to operation two of which died as the result of the operative procedures as distinct from the actual lesions produced on the pituitary. Ether was administered by the intratracheal method. Most of the animals used were from four to seven months old. Haemorrhage was a frequent annoying accompaniment of the operation but in all except one case it was controlled without difficulty. In no case were there severe postoperative complications. The animals generally drank milk within a few hours of the operation and seemed little affected the next day. Sometimes there was an escape of cerebrospinal fluid from the wound.

The author found that polyuria and glycosuria are frequent phenomena which may follow injury or stimulation of any part of the pituitary. He was unable to verify the cachexia said by Cushing to be specific in connection with certain pituitary lesions.

The effects of the operations were controlled by two experiments in which every step of the pituitary operation was performed except actual trau-

matization of the pituitary. Total extirpation of the pituitary was effectually carried out on six animals. All died within thirty-six hours with slow respiration and coma. No observable changes occurred in the genitalia nor were any definite changes found in the other endocrine organs. The hyperplasia of the thyroid as described by Cushing was not discovered in any of these cases.

In only two cases was it possible to remove all of the pars anterior. One dog lived thirty-two the other seventy hours following the operation. Nothing abnormal was observed in the other endocrine organs after operation. In the five experiments in which partial removal of the pars anterior was accomplished variable results were obtained. In three of the five cases the uterus and ovaries were definitely atrophied. The whole ovary shrinks in size, the graafian follicles degenerate, the primordial ova become opaque and lose their chromatin fibers, the interstitial cells vanish and the stroma becomes fibrous.

One experiment each was performed for the total and partial removal of the pars posterior. No lesions of the endocrine or sex glands were noted in either case. Combined partial anterior and posterior lobe removals were performed in two cases. No changes occurred in either of these animals. Clamping and separation of the stalk probably produced identical results. Of the three dogs on whom these operations were done two assumed a condition of distrophia adiposa genitalis. The changes in the adipose and glandular tissues were quite typical of the clinical picture in human beings.

Three experiments were performed to place an imitation tumor in the sella turcica. One dog was killed immediately after the operation because it seemed to be suffering intense pain. One animal had considerable emaciation and slight glycosuria. Other complicating conditions made it extremely doubtful if the tumor had anything to do with the condition.

Before summing up his own conclusions the author discusses at length the results of his own experiments compared to the results obtained by other investigators. His own conclusions follow verbatim.

1 The pituitary body is an organ that is essential to life. Its removal causes death within a few hours. In the cases which survive for longer periods the removal has probably not been complete.

2 The removal of very large portions of the pars anterior is incompatible with life. It appears certain from the evidence at disposal that it is the loss of this portion of the organ which proves fatal when total extirpation of the pituitary is practised.

3 Partial removal of the pars anterior may if sufficient quantity be removed cause genital atrophy. This may occur in the absence of any other symptom although the animal may also remain undersized.

4 Neither partial nor complete removal of the pars posterior causes any symptom. The genital



organs remain normal after operation and young animals continue to develop. Hence the secretion of the pars nervosa is neither necessarily beneficial nor essential to life.

5 Partial removal of the posterior and posterior cervical sympathetic ganglia provided only a small proportion of the parasympathetic removal.

6 Clinical and experimental studies of the fundibular stalk by interfering with the blood supply and so causing degeneration in the cells of the parathyroid anterior and intermediate lead to the condition known as dystrophia adipogenitalis.

7 Artificial tumor in the neighborhood of the cellar carcinoma may produce irritation which is accompanied by glycosuria and emaciation or by interfering with the blood supply may lead to degenerative change in the cells of the parathyroid anterior and so give rise to the syndrome of dystrophia adipogenitalis.

8 The parathyroid body appears to be one organ and not two and the essential and beneficial secretion is taken up by the blood stream as in the case of other organs of the endocrine system.

E. L. FISC

## NECK

Kahn L. and Graess S. Hygroma Cili. J. Surg. Phil. 1931

The authors state that hygroma cili is relatively rare. A careful collection investigation of literature was made by Dowd in 1931. Since then the case has been reported. An additional case is reported by the authors. The cyst is completely excised and the pathological report as that of multiple hygroma cili.

The multiple locular cysts are situated in the child and are probably due to development of embryonic sequence of lymphatic tissue. They are usually lined with endothelium and have the power of persistent irregular growth. Trauma is sometimes associated. It seems to be a decided factor in the development of the growth. Their inherent power of development is sufficient to force themselves into surrounding structures.

In multilocular hygroma the tumor in one compartment may be clear while in an adjacent one it may be tinged with hemoglobin. After birth the growth may show a conspicuous enlargement with no tendency to a definite ulcerous covering. The aggregation of cysts although penetrating superficially originates from the deep cervical fascia and most often appears in the posterior triangle of the neck. In the submaxillary region is classical differentiation from branchial cyst is not always easy.

According to Murphy after partial removal the tumor has returned in enormous increase in size and secretion. This secretion together with blood goes to observe at the late maximal development and indicate that the proper treatment of cystic hygroma is early cleavage and complete removal.

E. C. ROOS

Foman J. and Warden J. II. The So Called Medial Tumor of the Salivary Glands. J. Surg. Phil. 1931

The authors have studied seven cases of the so-called medial tumors of the salivary gland and they offer a possible explanation of the relationship of the parenchyma cells to the striated cells. It is generally agreed that these tumors take their origin in fetal implants. They contain elements whose origin has been a signed either to ectoderm to mesoderm or to a combination of both of these germ layers.

Four of the specimens occurred in the parotid and three in the submaxillary gland. In gross appearance the specimens fall easily into four groups.

1. A group of very fibrous tumors with no mucoid degeneration or cartilage formation.

2. A group of very hard dense tumors with large amounts of cartilage and very little fibrous tissue or parenchyma.

3. A group of very soft very cellular tumors with trabeculae of transparent mucous tissue running in and underlying the mass of the parenchyma which are yellowish in color and opaque in appearance.

4. Tumors closely resembling carcinoma. Injury does not appear to be an important factor in the development of these tumors. Metastasis appears to be a local recurrence is not infrequent.

From the various quotations and writings of other it is apparent that the difficulty in assigning an origin to these tumors is in the behavior of the so-called parenchyma cells.

The authors take into consideration that the derivation of some of the head cartilages can be ascribed to epithelium. They are of the opinion that the possibility of not a probability that there is in the head and branchial region of the human embryo mesenchyme which has been derived from ectoderm. Later this may differentiate into cartilage and possibly into other derivatives generally. A glanded mesenchyme derived from endoderm. The inclusion of implants of the ectoderm in the mesenchyme is due to the so-called medial tumors of the salivary glands. Either the cell fails to differentiate and simulate the cell from which they are or they differentiate along the line they normally do and form connective tissue cartilage and sometimes bone.

E. C. ROOS

Gartner W. W. Salivary Calculus. Laryng. 1931

The author details a personal case and advises operation through the floor of the mouth unless there is an external fistula or an abscess of the gland.

The technique employed in the author's case as follows: Morphine grain 1/50 and atropine grain 1/50 was injected hypodermally. The area was incised superficially and deeply. The patient lies on the affected side with the tongue protruded to the opposite side.

The stone is located by digital palpation the patient is directed to push the gland forward and upward by placing the thumb under the angle of the jaw.

The tissues are fixed by means of a pair of forceps and an incision is made down to the stone which is then grasped with the forceps and removed. Care should be taken not to injure the lingual nerve the maxillary artery or the facial artery. The wound should be left open and frequently irrigated.

Otto M. Rott

Denis W. Aub J. C. and Minot A. S. Blood Sugar in Hyperthyroidism *Arch Int Med* 1917 xv 964

Since and even before the advent of modern method for the determination of blood sugar the spontaneous glycosuria so frequently observed in patients suffering from hyperthyroidism has led several investigators to make studies on blood sugar in this disease. These studies have led to conflicting results. Tachaw and Flesch found an alimentary hyperglycemia in some cases but not in others. In 40 cases the latter investigator reported not a single instance of spontaneous hyperglycemia. On the other hand Geyelin from a study of 27 cases of hyperthyroidism concluded that an unmistakable hyperglycemia can be demonstrated in 90 per cent of the moderate and severe cases while even in mild types of the disease in alimentary hyperglycemia two hours after 100 gm of glucose could frequently be demonstrated.

In view of this lack of uniformity in the results reported it seemed worth while to the authors to carry out a series of experiments dealing with the effect produced by carbohydrate ingestion on persons suffering from hyperthyroidism. Coincident with these experiments they made observations on the gaseous metabolism of these patients with the idea of establishing if possible some relation between the increase in metabolism found in this condition and the effect produced on the blood sugar level by the ingestion of carbohydrates. From their study the authors draw the following summary.

Fasting hyperglycemia was of extremely rare occurrence in hyperthyroidism. Alimentary hyper-

glycemia following the administration of 100 gm of glucose and 50 gm of bread was however observed in every case examined.

No relation could be found between the degree of hyperglycemia and the intensity of glycosuria neither was it possible to obtain any evidence of a relation between the severity of intoxication as measured by the percentage increase over normal of the basal metabolism and the occurrence of hyperglycemia. In a number of cases it was found however that after improvement of the patient's condition by rest or by operation the alimentary hyperglycemia was of a much lower grade than that induced by the same test meal given before treatment.

In two cases of hypothyroidism no change in the fasting blood sugar level was observed to result from the administration of thyroid extract.

GEORGE E. BEILBY

Else J. E. Surgical Goiter *Northwest Med* 1918 xvii 16

Indications for operation upon the thyroid gland may be (1) cosmetic (2) mechanical (3) toxic and (4) malignant. The cosmetic and malignant types are not considered. The mechanical indications are those due to pressure as upon the trachea, esophagus, nerves and adjacent blood vessels.

Intrathoracic goiter may consist of (1) a single enlarged lobe (2) both lobes (3) portions of one or both lobes and (4) a true substernal lobe, a congenital anomaly being an atypical lobe below the isthmus.

Hyperthyroidism may be either functional or organic. The organic may be benign or malignant. Benign hyperthyroidism is of two types (1) exophthalmic or hyperplastic or (2) toxic or cardiovascular goiter. The latter pathologically is due to at least three lesions viz adenoma, adenomatosis and regeneration or compensatory hyperplasia. Each of the three is described briefly. Clinically they produce manifestations that are alike and which resemble the symptoms produced by other slowly administered toxic substances. Parenchymatous goiter is described pathologically.

Three case histories are given.

CARL R. STEINKE

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

Crymble P. T. Gunshot Wounds of the Chest *Brit J Surg* 1918 v 363

This article is based upon 211 cases observed during fifteen months in a base hospital in France and twelve months in a similar hospital in England. The most important part of the X-ray examination of the chest is to inspect the two domes or cupola of the diaphragm. The right dome cannot be dis-

tinguished from the shadow of the liver except when a subphrenic collection of gas is present. The left dome is normally defined by the gastric gas bubble. There is usually a deficient movement of the diaphragm in a perforating wound of the thorax and frequently there is complete immobility. The latter condition is also an accompaniment of lung collapse being found on the same side as the collapse. If an opaque lung area is present in the supradiaphragmatic area it may prevent observa-

tion of the movements of the diaphragm. If the opacity be due to fluid the diaphragm may be visible in the lying position. On the left side the presence of a stomach gas bubble will enable one to note the position and movement of the diaphragm here the left lung area is opaque.

The defective movement of the diaphragm can be looked upon as a protective reflex reaction in those cases where the lung area above is clear.

If however fluid in the pleural cavity or a wound of the lung is present or the bronchi are obstructed the diaphragm is drawn upward during inspiration and the mediastinum drawn toward the affected side. This is best seen in lung collapse and in hemothorax.

Adhesions between the costal and diaphragmatic pleura or between the visceral and diaphragmatic pleura will cause permanent defective movement and marked alteration in the shape of the cupola during inspiration. Marked elevation of the right cupola was noticed in a case of subphrenic abscess where a large quantity of gas accumulated between the liver and the diaphragm and again in a case of injury to the right phrenic nerve. Marked elevation of the left cupola as noted in left lung collapse and could be detected both radiographically and by percussion by the abnormally high position of the trachea and colon gas bubbles.

Local anesthesia of the thoracic foreign body is obtained by anteroposterior and lateral fluoroscopic views and then taking stereoscopic plates with the foreign body near the plate as possible. The entire examination is made with the patient in the lying position and a skin mark made over the most adjacent portion of rib. In taking the plate the patient is instructed to hold his breath and an exposure of ten to fifteen seconds without an accelerator screen is usually sufficient. A much longer exposure will be required in the presence of a hemothorax.

Crymble differs with those who advocate non-interference unless the foreign body is in the pleural cavity and giving rise to symptoms. His experience based on ten cases states that the removal of these intrathoracic metallic foreign bodies can be readily done and does not influence the convalescence unfavorably.

To insure removal of the foreign body the pleural cavity is opened by necessity the lung is cut and the missile located by palpation. In the presence of adhesions no pneumothorax will take place other than the palpation and will fairly efficiently block the pleural opening. Foreign bodies in the lung are easily palpated and the entering lung tissue is often friable so that the finger can accomplish the loosening of the metal fragment and for cephalic extraction. After the removal has been accomplished one closes the pleural opening and tightly sutures the overlying muscles and skin so as to prevent any communication with the outside air. The wound of the lung appears to close rapidly and the air is ultimately absorbed from the pleural cavity.

When possible the patient should be examined both in the lying and sitting positions with the rays passing dorsally and ventrally and the apparatus should be capable of giving a satisfactory result with a plate exposure of five seconds with an accelerator screen. Stereoscopic plates are almost indispensable for a proper study of injuries of the thorax.

A very large quantity of fluid will render the whole of one lung area opaque while a small collection will produce a supradaphragmatic opacity in the sitting position. In the lying position fluid disseminates itself through the pleural cavity and produces a moderate opacity of the whole lung area. The nature of the pleural fluid cannot be determined radiographically.

Gas in the pleural cavity associated with retraction of the lung from the lateral thoracic wall is evidenced by the presence of an opaque line produced by the lateral margin of the collapsed lung and even quite small collection of gas may disclose themselves in this way. Where however owing to old adhesion between the lung and the lateral thoracic wall later collapse of the lung cannot take place the gas tends to collect in front of the lung and fail to alter the appearance of the lung area. In one case a large pneumothorax was not recognized at the X-ray examination but was subsequently revealed by exploratory puncture and confirmed by postmortem examination.

Traumatic laceration of the lung is the condition produced by contusion or laceration and it gives rise to an opacity of the lung area involved.

Gas and fluid in the pleural cavity give rise in the sitting position to a very characteristic picture. A sharp horizontal line marks the junction of the opaque fluid with the transparent gas. During examination on the gas-fluid junction may show various bubbles or splashing. When the lower part of the lung is involved some difficulty may be experienced in distinguishing a traumatic infarct from a small hemothorax and frequently the latter condition accompanies the former.

Pneumogastriasis is an opacity of the lung area involved without displacement of the heart.

Pasteur (*Brit J Surg* 9:4:1587) was the first to describe this condition in association with diaphragmatic adhesion as a sequel to abdominal operation. Balford (*Brit J Surg* 1:247 and *Brit M J* 10:Aug 4) has pointed out the frequency with which this condition accompanies gunshot wounds of the chest and was the first to suggest mass collection as the explanation of certain puzzling adglomerations of the outstanding feature of which is opacity of the lung area with retraction of the heart toward the opaque side.

In ten of Crymble's fifteen cases of massive collapse of the lung the condition was found on the side opposite that injured and in five it was present on the same side as the injury. It shows as an opacity associated with a high and immobile diaphragm the mediastinum being retracted toward

the opacity. The latter disappears in one to two weeks. Collapse as a rule affects only the left lower lobe but in one case the entire lung was involved and in another only the apex.

A brief summary is given of the X-ray and physical findings in the various conditions resulting from injury to the chest. Altogether this article upon the X-ray findings is the best which has thus far appeared and a study of the excellent radio-grams accompanying the details of each case can be warmly recommended. D. N. EISENDRATH

Rees W. A. and Hughes G. S. Wounds of the Chest as Seen at an Advanced Operating Center. *Lancet* Lond. 1918 cxciv 55

The figures and analyses in this paper are based on 140 consecutive cases of uncomplicated chest wounds seen early after injury during a comparatively quiet period of six months. The wounds are classified as closed in case the wound is small or valvular preventing air passing in and out with the movements of respiration and leaking in case air or bubbles escape from the wound on respiration when the patient coughs or is rolled over. The earlier the patient is seen the larger will be the proportion of leaking to closed cases since many wounds close spontaneously in the first twenty-four hours.

Primary hæmorrhage into the pleural cavity is common to both. It is the chief cause of death during the first few hours after receipt of a wound of the chest. When severe the patient is blanched and very restless. In the worst cases morphia may fail to control restlessness because the drug is not absorbed by the failing circulation. In 12 fatal cases 9 were pulseless on admission in the other 3 the pulse rate was between 130 and 140. There were 7 other fatal cases of primary hæmorrhage complicated by other injuries.

Treatment in these serious cases is mainly expectant. Patients with a readily perceptible pulse may die suddenly if rolled over on the sound side within twelve hours after being wounded. Bleeding does not usually continue after twenty-four hours.

It usually comes from the deeper blood vessels in the lung. Nature's method of arresting it is to cause collapse of the lung. The pressure on the lung by the accumulated fluid in the pleural cavity will not by itself assist much in the arrest of the hæmorrhage. No single case of hæmorrhage from an intercostal artery has been seen. Plugging of the wound is therefore of no benefit except after the lung is collapsed when it may improve respiration by rendering the entrance of air into the chest easier by respiratory passages than through the wound.

Hæmoptysis was present in 65 of 100 cases of undoubted penetrating wounds of the lung. In no case was it severe enough to cause anxiety.

Leaking pneumothorax was present in 44 cases with a mortality of 61 per cent. Excluding 18 fatal cases that died early there were left 26 who lived long enough for the pleura to become grossly infected.

Of these 15 became septic and 9 died. The proportion of leaking pneumothorax which became infected was then 57 per cent. five times the proportion in closed hæmorrhax. The question of sepsis is therefore a very important one and is dependent on the size of the opening in the pleura. Any wound which leaks air or blood and pleural fluid freely after forty-eight hours will become septic. Convalescence and invalidism is also greatly prolonged.

Treatment of these leaking cases is by simple dressing by plugging the wound or by sewing up the wound with or without removal of foreign bodies. The simple dressing is sufficient in case of small wounds. Air will cease to leak in twenty-four to forty-eight hours. If it continues or if the discharge persists sepsis is almost certainly present and resection and drainage is indicated.

Plugging the wound is done to arrest hæmorrhage and to prevent the entrance of germ-laden air. It is however difficult to render a large wound air-tight with gauze and there is danger of introducing germs from the edge of the wound.

Sewing up of the wound is advisable in all cases since by this means infection can be prevented in more than half the cases. The removal of foreign bodies from the lung is justifiable only in selected cases. About twelve hours after being wounded is perhaps the best time for suture. Shock should have passed off and hæmorrhage ceased before operation. Chloroform and warmed oxygen is the most suitable anæsthetic following morphia and atropin. The suturing takes only a few minutes. Muscle and pleura are sutured with catgut the last stitch being drawn tight during expiration and the skin with silk-worm gut. If the pleural contents are infected the wound will become moist in forty-eight hours. The stitches are then removed and a tube inserted. In general these cases are bad operative risks and operations should be as speedy and simple as possible. Nothing is gained by sewing up holes or tears in the lung.

Only those cases of closed hæmorrhax giving rise to physical signs and proven by the syringe are included in this series. Closed hæmopneumothorax differs in no way from hæmorrhax except in greater liability to increased intrathoracic pressure and cardiac displacement. Air in these cases comes from the lung. There were 72 cases of hæmorrhax and closed hæmopneumothorax with a mortality of 19.3 per cent. Of the fatal cases 5 died from internal hæmorrhage. Of the 67 that survived 48 hours only 11.9 per cent died from this cause.

The average stay of the hæmorrhax cases at the advanced station was seven days. The three patients who recovered following rib resection showed signs of infection on the fifth, tenth and thirteenth days respectively. Rapid pulse, sustained temperature and localized pain in the chest are signs of infection of hæmorrhax. Chest cases should be examined every day, especial attention being directed to the position of cardiac impulse. Aspiration should be

pe formed when there is a displacement of one inch or more. All the fluid that will run off easily is removed slowly at the rate of about an ounce per minute. I rarely call all hæmopneumothorax cases require aspiration.

Of miscellaneous complications collapse of the wounded lung pleurisy secondary hæmorrhage from the lung following septal and cardiac complications are mentioned.

Collapse of the lung most marked in cases of pneumohæmorrhage or very large effusions. It is one of nature's most potent methods of arresting hæmorrhage. Massive collapse will occur almost when the wounded side when there is very little hæmorrhage and no raised intrathoracic pressure. It also is fairly common in the side not wounded. Two factors assist in this, a cessation of movement of the diaphragm and a blood clot completely blocking a bronchus. In these cases the apex beat is pulled over to the side of collapse the diaphragm raised the affected side is immobile and the respiration is increased greatly on exertion. C. A. H. D. M.

Caplan, U. Treatment of Penetrating Thoracic Wounds (F. t. p. t. t. d. l. t. acc. e. l. )  
P. l. l. R. m. 97 p. t. 43

The author treated 137 cases of penetrating chest wound. The mortality was 84 per cent. He gives the following statistics:

Nine or 6.5 per cent died as a result of thoracic lesions. Thirty or 21.8 per cent died from thoracic lesions complicated with lesions of other organs.

These figures show the interesting fact that only 6.5 per cent of the mortality resulted from simple thoracic lesions. The author states that his figures compare favorably with the statistics of other contemporaries as for instance Remond and Glendon who give a mortality of 54.5 per cent. Guleke 53.3 per cent. Othens 51 per cent. Higher 71.2 per cent. Tillage 66 per cent. Rotter 66 per cent. Lau 61 per cent. Mai 60 per cent. Lemaitre 9 per cent. Morelli 25 per cent. and Bastianelli 4 per cent.

The author discusses the symptomatology of the wound. As regards treatment he thinks that the removal of all blood clots in the pleura and the employment of a small pneumothorax following the Forlani method is the only treatment which assures definite repair of the wound and restores the respiratory function in the injured lung.

The maintenance of pneumothorax by the regular technique is the rule in cases in which the projectile is retained in the cavity and presumably in the lung. W. A. B. R. N. A. N.

Pisek, G. R. Report of a Case of Chylothorax  
1. h. P. d. t. 97 99

The patient was a full term baby fed no malbaby in nine weeks. There was a history of sudden illness ten days before followed after a few hours by a convulsion. Rapid breathing was the only other symptom. The attending physician diagnosed

pneumonia. The physical examination showed cyanosis, restlessness, a respiration of 60 to 90 per minute, there was no fever. Aspiration over the flat area of the right chest yielded a milky fluid of which six ounces were withdrawn. The child's color then improved and it took the breast better.

A laboratory examination showed a sterile colloid fluid composed of 13.5 per cent fat and sero leucobulins and containing about 1200 leucocytes per cmm.

Nine ounces of similar fluid were withdrawn five days later with relief of dyspnoea etc. A radiogram showed effusion in the right chest with displacement of the heart to the left. The blood and urine examination a negative.

To prove the character of the fluid 7/8 grams of Sudan III were given the baby. Bright red stools followed. Thoracentesis eighteen hours later yielded pink stained chylous fluid.

The baby became free of symptoms during three weeks stay in the hospital and gained weight. Aspiration now yielded no fluid.

It is necessary to distinguish between true and pseudo chylothorax. Both forms are rare. Bargebush in 1895 reported 22 true and 19 pseudo cases. Sherman in 1901 tabulated 11 cases under fourteen years. The author believes his case the youngest on record. He considers trauma, new growths, tubercles and thrombi as etiological factors. The conclusion may have been etiological in this case. The mortality in true cases is given at 50 to 75 per cent in the pseudo form at 40 to 50 per cent. The aetiology rather than resection is the best treatment. C. A. H. D. M.

Campbell, J. Th. Treatment of Septic Hæmorrhage and Empyema. B. t. M. J. 98 99

Many cases of septic hæmorrhage in the early stage can be successfully treated by thoracotomy and careful removal of all fluid and clots followed by a hanging out of Dakin's solution and complete closure of the pleural cavity. This treatment however is insufficient in half of the severe septic cases and drainage is followed by long continued fever and exhausting suppuration. Campbell has found in a number of cases that it is superior to any other for the severely septic cases. In a ray examination first made and any foreign body localized.

Under a general anaesthesia the wound is explored, the fractured portions of the rib resected and the wound sewn up if its condition allows. The pleural cavity is then drained in the usual fashion, resecting about three and a half inches of rib as far forward and as low as possible that is usually the eighth rib in the mid or anterior axillary line. Though this opening the cavity is explored and an easily accessible foreign body and fragments of loose bone lying in the cavity or on the surface of the lung are removed. Blood clot and fibrin are swabbed out as far as possible and any septa forming loculi broken down.

The cavity is next washed out with a warm mixture of hydrogen peroxide and eusol or Dakin's

solution. A rubber tube with an internal diameter of a quarter of an inch with a large lateral opening a quarter of an inch from one extremity is then inserted so that the end lies in the most dependent part of the pleural cavity when the patient is lying on the normal side that is in the costovertebral recess behind the pericardium. Finally the wound is loosely sewn up but no attempt is made to effect an airtight closure around the tube.

When the patient has recovered from the operation the size of the cavity is estimated by filling it carefully but usually incompletely with warmed Dakin's solution and then emptying it. After this the cavity is filled through the tube every four hours to about one third of its capacity or less with Dakin's solution. At the end of two hours another long tube is attached to the tube in the chest and the fluid siphoned out the patient meanwhile lying on the sound side with the chest opening uppermost or as nearly so as possible. The patient is told to pant or cough slightly at frequent intervals as long as the fluid remains in the chest and by this means splash the fluid about inside the cavity and so bathe with it the entire infected surface and any recesses that may exist.

In this way the pleural cavity contains for two hours a large quantity of sodium hypochlorite solution and is more or less empty for a like time. During the former period the patient lies rigidly on the sound side without any raising of the shoulders to prevent escape of the fluid and consequent flooding of the bed; during the latter he is free to lie as he chooses. Thus the patient gets a reasonable amount of rest and comfort and is saved the exhaustion associated with the maintenance of one constant position. In addition once daily the tube is removed, sterilized and replaced and the cavity washed out as in the usual treatment for empyema.

To overcome the disadvantage of injecting cold fluid into the chest the author has found that it is better to make Dakin's solution of double strength and prior to filling to dilute it with an equal quantity of warm sterile water.

D. N. EISENDRATH

**Sergeant E. Pruvost P. and Labro P. Functional Disturbances Attributable to a Lesion of the Cardiac Plexus and of the Mediastinal Nerves in Chest Wound Cases (Troubles fonctionnels imputables à la lésion du plexus cardiaque et des nerfs du médiastin chez les blessés de poitrine)** *Ann. de méd. Pa.* 1917, 473

In cases of chest wounds a certain number sooner or later complain of oppression, palpitations and thoracic pain even when a complete stethoscopic as well as radioscopic investigation shows the absolute soundness of the heart pericardium, lungs and pleura.

Some of these cases are exaggerating or shamming; others are nervous or suffering from shock but all are not. In some a thorough examination makes functional disorders evident by revealing

the existence (1) of symptoms due to a lesion of the cervical sympathetic or of the vagus nerves (2) of symptoms due to a lesion of the phrenic nerve.

In some cases the projectile has remained in the body of the patient whose complaints may be verified by the fact that the presence of this projectile can be discovered in the region of the large vessels at the base of the heart or in the region of the cardiac plexus.

The author relates ten cases in support of his argument. In five of these hyperthyroidism was observed in three phrenic neuralgia in four pupillary irregularity and in two vasomotor disturbances. In such cases the desirability of extracting a retained projectile must be considered.

W. A. BRENNAN

### TRACHEA AND LUNGS

**Duval P. and Vaucher E. War Wounds of the Lung (Les plaies de guerre du poulmon)** *Bull. et mém. Soc. de chir. de Par.* 1917, 1411, 2423

The authors report 161 cases of lung wounds. The mortality was 16 per cent. These include all cases even those arriving dead at the station and cases where death resulted from other than the pulmonary wound.

The mortality in 29 cases where an urgent operation was done for hemorrhage or an open thorax was 44.8 per cent.

Deducting these 29 and 13 dying without any operation from the 161 cases leaves 119 cases. Of these 17 were operated upon for the extraction of projectiles or for direct treatment of the lung wound. All others were treated medically. Duval therefore has only operated on 28.5 per cent of ordinary lung wounds. The 17 operated cases all resulted in recovery. Of the 101 cases medically treated there was 1 death from pleural infection and 10 other cases of pleural infection which recovered.

The operative indications in lung wounds are both general and particular according to the given case. Duval thinks that projectile wounds of the lungs are not different in their general aspect and progress from other projectile wound. Anatomically, bacteriologically and clinically such lesions are the same and it is logical to treat the lung as any other damaged tissue: remove the foreign bodies, excise the contused tissues and primarily suture the aseptic wound.

Apart from their general indications there are particular indications in given cases. Such are (1) the presence of a thoracic parietal fracture (2) a large projectile included in the lung (3) pulmonary hæmatoma (4) the co-existence of other wounds in the thorax or abdomen. The authors discuss each of these types.

In the operative technique every effort ought to tend towards the complete treatment of the wound of the lung. Every postoperative septic complication observed by the authors was due to the



spring either from embryonic cutaneous inclusions or from the growth of a misplaced and blighted ovum. When not congenital they develop from nests of epithelial cells which are carried into the deeper tissues during the inception of a punctured wound. Both these tumors may be classified therefore as being congenital or acquired in point of origin and as being external or internal in point of location. Examples of external teratomata are the Siamese twins, polydactylism, spina bifida, etc. Internal teratomata are far more frequent and are the types usually designated by the term

Dermoids are distinctly more common than both types of teratomata combined. They are made up largely of dermal tissue plus one or more of its appendages while teratomata are tumors of a peculiar mixed histologic composition and are described by some as containing tissues, organs or systems of organs derived from two or all of the germ layers. Dermoids are spoken of as structures of slight complexity and teratomata as structures of great complexity. The ovary, testicle, sacrococcygeal region and mediastinum in the order named are the most frequent sites of these tumors.

Hare's analysis in 1888 of 520 cases of mediastinal tumors included 8 dermoids and one unquestionable teratoma. Christian in 1907 analyzed 70 cases, 7 of which were teratomata, the remainder dermoids.

Bland Sutton observes that these tumors in the mediastinum originate from cutaneous or subcutaneous inclusions of cells with their subsequent dislocation backward during the process of folding together of the two halves of the body during early intra uterine life. These cells may manifest themselves later in life as tumors of the sternum or much more frequently settle in the anterior mediastinum where they may involve the pleura or pericardium. They originate therefore not in the lung itself but in the mediastinum. Once in the lung infection by germ laden air may lead to suppuration.

Surgical interference is indicated only when circulation or respiration is seriously impaired. Excision *in toto* has been successfully accomplished in only one case. C. A. HEDBLOM.

Van Reeth P., Voncken J. and Strassen M.  
Strangulated Pulmonary Hernia (Hernie pulmonaire étranglée). *Arch. méd. belges* 1917 lxx 1142.

In the war practice the authors met a case of strangulated pulmonary hernia. Operation showed that a bullet had passed tangentially over the sixth and seventh ribs which were fractured in the mammary line. The costal breach was hidden by a pulmonary lobe about the size of a pigeon's egg, a true pulmonary hernia. It was compressed between the sixth and seventh ribs. The herniated lung tissue was violet in color. Blood squirted at every respiratory movement.

The herniated lobe was seized by a compress soaked in warm salt solution, cautiously freed and

reduced into the pleural cavity. Resection of the fractured ribs was then done. The pleural cavity was cleared of accumulated blood. The freed lung lobe was carefully examined and cleaned and since its general condition was found good they decided to save it. The pleura was very ecchymotic. The whole region was cleansed of blood clots, the pleural cavity washed out with salt solution, intercostal vessels ligatured and the wound closed. A liter of salt solution was administered at the end of the operation. For two days after operation the patient's condition was critical but the general state then began to improve, cyanosis and dyspnea diminished. Three months after operation he left the hospital cured.

The authors discuss the occurrence, symptomatology and treatment of pulmonary hernia. Although the condition is said to be rare they think it may occur more frequently than is believed since it has been the general practice until recently not to intervene surgically in lung lesions. When the cutaneous wound is large an existing hernia is easily apparent but when the skin wound is small a pulmonary hernia through the ribs may pass undetected.

As a means to detect the existence of a lung hernia the authors state (1) that in the neighborhood of the wound there is often found a small resistant crepitant swelling, a localized emphysema. If such is found it suggests pulmonary hernia especially if the patient complains of sharp pains at this point. (2) such patients show convulsive and painful dyspnea. (3) pulmonary hernia must be considered when the traumatic orifices are situated in the soft parts of the thorax. In cases of doubt a small incision of the part under local anesthesia will discover the lesion.

A pulmonary hernia if not operated upon is extremely liable to become gangrenous and a fatal issue may be expected from pleural empyema or infectious pneumonia. W. A. BRENNAN.

## HEART AND VASCULAR SYSTEM

Irvine S. A. and Tranter C. L. Infarction of the Heart Simulating Acute Surgical Abdominal Conditions. *Am. J. W. Sc.* 1918 clv 57.

The authors present two cases which gave the history and presented the signs of an acute inflammatory or perforative lesion of the upper abdomen but proved to have coronary thrombosis with infarction of the heart. The cases were strikingly similar in their history, clinical course, physical findings and necropsy examination.

Both patients entered the hospital complaining of acute epigastric pain of a few days' duration. In one case and of a few hours' duration in the other. Both had slight nausea and some vomiting but neither had chills nor fever. Their past histories were essentially negative except for antecedent angina in one.

Physical examination showed marked tenderness



in the ep gastr um in each case and a questionable mass in the region of the gall bladder over which the percuss on note was dull. The pulses were of poor quality slightly rapid and the heart sounds were feeble. In neither case were cardiac murmurs heard the apex beat was neither seen nor felt and cardiac illness as slightly increased in the second case. One case developed complete heart block shortly before death.

The blood pressure in both cases as low the pulse pressure in the first case only and in the second 26. The cardiac anomalies signs in the right lower chest in both instances consisting of a moderate number of rales at one time and subsequently diminished on the birth sound is throughout both lung.

The acute ep gastr ic pain and tenderness together with a leucocytosis of about 10,000 and milder fever in both cases made the diagnosis of an acute inflammation of the upper

abdomen seem probable. The conditions considered were perforated gastric ulcer acute pancreatitis and acute gall bladder disease.

A laparotomy with negative findings was performed in the first case. The mild abdomen with acidosis in the second case together with the drowsiness influenced the surgeons to consider that the patient might be on the verge of coma and dissuaded them from operation.

The condition above described bears a close relation to angina abdominalis and angina pectoris. All it points out as distinguishing features of coronary embolism from the angina pectoris is of the ordinary form the flutter and lability of the heart the rapid irregular and failing pulse the waning count the dyspnoea and the cyanosis. He as well as Hochhaus Obrastzo and Streschesko refer to the fact that the pain in infarction of the heart is more continuous than in typical angina.

P. G. S. I. LERN J.

## SURGERY OF THE ABDOMEN

### ABDOMINAL WALL AND PERITONEUM

**Delbet P. Toxic Peritonitis in Peritonitis and Shock** (L. phé m t q d l pé t t d l h) B l l t é s d h d P q lu 3

Delbet refers to experiments made by him as far back as 1892 as well as recent ones to produce peritonitis by perforation collecting the peritoneal exudate and injecting it into other dogs.

He has found that when an animal is injected with the serous exudate of peritonitis whether the exudate is pure or filtrated through a canvas apparatus by which the microbes are completely or partially removed the result in each case is the same i.e. symptoms of inflammation of the peritoneum. The venous hypotension is possible but the action is due either to erosion or to an intoxication.

The injection of irritant into the peritoneum does not produce vomiting injection of serous exudate does produce vomiting within half an hour after injection. Delbet thinks that the mitral and peritoneal spasms are not due to a reflex contraction of the peritoneum but to an intoxication. The death of the animal is within three to four hours after injection on point of intestinal contraction. Delbet thinks that the classical symptoms of peritonitis are above all of toxic origin and due to the absorption of the toxins produced by the development of microbe in a particular area. Hence such symptoms are inconsistent and the so-called classic symptoms of peritonitis and constipation may all be simultaneously absent. There is one valuable symptom however which is never absent namely limitation of the motion of the

diaphragm. It is very valuable because it is produced before the infection has become generalized and shows the extension of the peritonitis. There is always a possibility of saving a patient if intervention is made within a short time of the appearance of the symptom.

Delbet finally shows that in the final phases of fatal peritonitis the symptoms are those observed in the wounded in a state of shock. They are due to an intoxication of the nervous system more especially the bulb and the sympathetic. This leads Delbet to ask if intoxication does not play a part in some forms of shock. He thinks it does and others have arrived at the same conclusion. The practical application of the theory of the autotoxic origin of shock could indicate immediate amputation in certain cases irrespective of the state of shock.

W. A. DEE. AV

**De Ne N. D. D. An Experimental Study of Peritonitis with Reference to Calcium Sulphide and Speil Refraction to Iodine and Ethyl in Its Treatment** J. S. G. 97 11 37

A series of experiments as made on peritonitis in dogs in order to see whether ether will kill bacteria than the abdominal cavity and allow to leave whether or not it is advisable to leave an abdomen without drainage when large numbers of bacteria are left within the abdominal cavity after a operation.

Calcium sulphide as also used for the same purpose. It is noted that an aqueous solution of calcium sulphide could dissolve yellow blood and the point is as to whether or not it would prevent or dissolve abdominal adhesions.

I dine as used in the abdominal cavity in

some experiments equal parts of tincture of iodine and alcohol and in others one part of tincture of iodine to ten parts of sterile water

The author draws the following conclusions

1 Calcium sulphide has no value as an antiseptic and did not prevent adhesions in these experiments

2 Ether has no value as an antiseptic in the prevention or treatment of local or general peritonitis

3 Ether will cause respiratory paralysis when used in large quantities within the abdomen

4 Ether is irritating and will cause adhesions when used upon the normal peritoneum

5 Ether aids rather than inhibits infection in the peritoneal cavity

6 Tincture of iodine and alcohol equal parts proved to be extremely irritating and harmful

7 Tincture of iodine causes adhesions when applied to the peritoneum

8 Tincture of iodine and water did not prevent peritonitis

9 Drainage is preferable to calcium sulphide ether or iodine in the treatment of peritonitis

10 The peritoneum protects the system against bacteria

C A BOWERS

Fobes J H. Hernia Through the Anterior Abdominal Wall in Women. *Internal J Surg* 1918 xxix 11

Excluding femoral and inguinal hernia the author divides these cases according to frequency into umbilical ventral ordinary ventral post incisional ventral post traumatic epigastric and ventral accompanied with procidentia

A brief resume of embryological anatomy emphasizing the importance of Richter's fascia is noted in the umbilical type. Infants are treated by the button mould or coin adhesive truss others by the Mayo plan of overlapping closure. The results of the latter are uniformly successful

Ventral ordinary type hernia are noted below the umbilicus involve wide diastasis of the recti muscles and therefore present a sac with a neck of large diameter. Strangulation is infrequent. Operative treatment consists in a Pfannenstiel type of incision through sheaths of recti reduction of the sac overlapping of the recti muscles from side to side and overlapping of the fascia from above downward. A case is reported from the service of the Metropolitan Hospital New York City with a failure from a previous operation of the Morrison type presenting also an inguinal diverticulum of the sac. A cure still present after two years was obtained by closing the inguinal canal from within and performing the operation described above

Postincisional ventral hernia require for their cure wide elliptical incisions entering the peritoneal cavity through healthy tissue the removal of diseased contents and repair by overlapping of fascia

The author notes a rare case of true traumatic hernia. The patient received a severe blow in the abdomen below the umbilicus from a plank

Signs of hernia were present. Incision revealed a complete tear of the right rectus muscle and sheath and a protrusion of the peritoneum containing intestines and omentum. The muscle was sutured at right angles to the tear and the sheath overlapped in the customary manner. Examination six months later showed a cure

The last case reported is one of procidentia uteri and ventral hernia. Through the transverse incision the abdomen was opened the uterus split the endometrium curetted away the two portions of the uterus sutured to the under surface of the recti with linen thread passed up through the rectus sheath and the peritoneum closed about the cervix. The recti were then overlapped from side to side and the recti sheath overlapped from above downward. Two months later both procidentia and hernia were relieved

Erdman S. Inguinal Hernia in the Male. *Ann Surg Phila* 1917 lxxvi 702

The author reports the results of the post operative observations in 148 cases of inguinal hernia extending over periods of eight to eighteen months. Of these cases 102 were indirect and 46 direct

There was no instance of a direct hernia on one side with an oblique one on the opposite side. Of the indirect cases 40 per cent showed early tumefactions in the scrotum and 22.5 per cent of these were persistent. These included hydroceles thrombosed veins distended veins tunica thickenings hæmatomata indurations of the cord and indurations of the testis. In the direct cases only 15.2 per cent showed early tumefactions and 8.7 per cent were persistent

There were nine recurrences in the series 20 being in the oblique cases and seven in the direct. Atrophy of the testicle occurred twice and there were two deaths one due to pulmonary embolism on the eleventh day and the other due to pneumonia on the twenty third day

From an analysis of these cases it seems that a persistent hydrocele is a common and important after result there being 20 hydroceles in 148 cases. The author believes that direct hernia are acquired and not associated with hydrocele while oblique hernia are usually developmental more often right sided and often associated with hydrocele of the cord and of the tunica

GATEWOOD

Symonds C P. A Case of Traumatic Hernia of the Diaphragm Proving Fatal Seven Months After the Wound. *J Roy Army Med Corps Lond* 1917 xxxix 34

In the case reported a man was wounded by a bullet which entered over the left scapula. The bullet was removed and the man left the hospital. Later he developed sharp attacks of abdominal pains with vomiting etc and was again admitted to the hospital. His case after examination was

finally diagnosed from  $\lambda$  ray findings as diaphragmatic hernia

The man not operated upon until a later attack occurred his condition as desperate. He died from shock. The autopsy showed a large circular opening near the center of the left dome of the diaphragm. The stomach great mentum transverse colon and part of the small intestine had herniated into the thorax. Spontaneous reduction in the probability occurred until the last attack.

The authors think that even if the patient had been operated upon when first seen the size of the diaphragmatic orifice was so large that nothing could have been done to repair it.

W. A. B.

### GASTRO INTESTINAL TRACT

Lockwood G. R. T. Symptomatology of Peptic Ulcer. *St. J. Med.* 9, 535

Lockwood is against too hasty a diagnosis of peptic ulcer and believes that too much reliance placed on  $\lambda$  ray and laboratory findings. The  $\lambda$  ray frequently fails to show duodenal ulcer. A tri-analyses of the stomach both after fasting and after the test meal offers the most valuable information.

Hyperacidity is more than 30 ccm of gastric juice repeatedly found pathologically and significant error. Hyperacidity also depends on motility or Pyloric hyperactivity indicates a organic lesion. In the case of ulcer the nearer the lesion to the pylorus the higher the acidity.

The chief characteristics of ulcer history are: (1) the regularity with which the symptoms appear at a definite hour after meals; (2) the relief afforded by taking food. Other conditions simulating ulcer have not the clock-like periodicity of appearance of symptoms.

Observation of the case for a long time together with a careful history and all laboratory findings checked one against the other the only way one can diagnose this condition. I. I. B. S. H.

T. H. A. G. T. and Duodenal Ulcers. *Surgical Principles of Visceral Surgery* 9, 71, 664

T. H. found in the cases studied by him that 6 per cent of 234 gastric and duodenal ulcer cases located in the stomach and 4 per cent in the duodenum 5 per cent of the cases had multiple ulcers.

The time of appearance of pain gave no definite differential point between duodenal and gastric ulcer. The total acidity as latently high is 53 but hypochlorhydria occurred in both types. The average acidity was 1.5 for cases with evidence of the disease with uterine disease.

The  $\lambda$  ray is more reliable than the motility in investigating gastric motility. Ulcers may exist for a time at least but are ultimately painless. Two thirds of the ulcers relieved by food intake were

in the stomach and 5 per cent of all cases perceived a relief of pain on vomiting. Pain during defecation due to perigastric adhesions. Twenty-two stomach and 5 duodenal cases had periodic diarrhea alternating with constipation.

At laparotomy it is possible to determine by palpation the presence of an ulcer.  $\lambda$  ray is again of importance in directly demonstrating ulcer especially on the lesser curvature by the niche. Tendency to over such a niche in the duodenum gives high in the duodenum and rapid stomach emptying are reliable signs of ulcer in this section. Radiography and methods replacing the conservative.

The authors carefully analyzed and groups the 34 cases studied according to an operative method and the results. Resection plus gastrotomy is the better result if the necessary secondary operation.

K. L. A. E.

Morse W. E. The Effect of Various Nutritional Factors on Gastric and Duodenal Regurgitation. *St. J. Med.* 9, 8, 48

In a recent publication attention was called to various conflicting experimental and clinical observations concerning the relation of acidity of gastric contents to the rate of gastric discharge. In general physiology literature supports the theory that a decrease in essential to and hasten gastric discharge upon putrum acidity from 0.1 to 0.2 per cent. Some clinical observers found that called hyperacidity increases gastric motility. However, in order to do a contributing factor in the gastric dilatation.

In the hypothesis and to secure data concerning the effect of varying chemical conditions in the stomach gastric secretion in duodenal regurgitation. The results of experiments were undertaken by the authors of different concentrations of secretions.

The conditions imposed were identical with those of the first and previously reported namely first an alkalizing stomach secretion fluid injected of constant temperature and quantity but of varying concentration. The abolishment of inhibitory effect by putting the pyloric condition on the splanchnic nerve and fourth general effect. As a check in the foregoing preliminary experiments made on animals with the pylorus ligated in order to eliminate any error in the calculation of the rate of discharge from the stomach which might be from the secretion of unknown quantity of gastric juice.

From the study of Morse make the following summary.

Solution of sodium chloride ranging from 1 to 0.05 per cent slightly augmented the rate of discharge of fluid from the stomach of a anesthetized and diphtheria or splanchnicotomized dogs. Solutions of concentration 0.3 per cent produced an increase of fluid in the stomach by 100 per cent but the pylorus ligated the increase exceeded that obtained.

with the pylorus patent sufficient to indicate a discharge greater than the discharge with water

Solutions of sodium acetate slightly retarded the discharge of fluid from the stomach of an anesthetized and splanchicotomy dogs

The fluid content of the stomach was usually increased when solutions of sodium chloride or sodium acetate were injected in concentration above 3 per cent. This increase was attributed to osmosis exceeding the amount of discharge

The rate of secretion of gastric juice as computed from the increase of acidity averaged 2.33 ccm per 30 minutes when water was injected into the stomach and the pylorus was patent. This rate of secretion was not materially altered by ligation of the pylorus or injection of solutions of sodium chloride, sodium acetate or tabasco pepper sauce

The acidity of solutions of hydrochloric acid injected into the stomach of anesthetized dogs with the pylorus ligated was decreased; the rate of diminution increasing with increase in the acidity of the solutions

The average discharge of water from the stomach was 14.3 ccm per 30 minutes in 51 trials. By eliminating 11 extreme cases the average for 40 animals was reduced to 10 ccm

Solutions of tabasco pepper sauce were discharged from the stomach at practically the same rate as water

The mechanism of gastric discharge did not react to solutions of sodium chloride, sodium acetate and tabasco pepper sauce in the same manner that it reacted to solutions of hydrochloric acid

GEORGE F. BEILBY

**Témoin Gastric Surgery** (Chirurgie gastrique)  
*Bull Acad de med* 1ar 917 lxxviii 737

In a previous report in January 1917 Témoin referred to 186 operations for gastric ulcer in which he demonstrated the necessity not only of establishing a gastrojejunal anastomosis but also of resecting the pylorus and of extending the resection to include all the inflamed part of the stomach wall. In the present report he states that in 1917 he has done 56 new operations of this kind with 5 deaths. Only 1 death however can be claimed as due to the operation. In every case excepting four or five the whole of the pyloric region and even a portion of the gastric wall showed the characteristic signs of inflammation. Some had perigastric lesions adhesions to neighboring organs etc.

Témoin thinks that although gastroenterostomy was a great advance in the treatment in cases of pyloric atresia yet it is not sufficient. In such cases it preserves the patient's life. If it has great value when resection is impossible or when the condition of the patient is such that time is valuable.

But in all other circumstances resection is indicated. When an ulcer is situated in the small curvature a gastroenterostomy does not suppress the pain and danger of perforation remains. The smallest quantity of food passing through the pyloric

orifice produces intense pain and in cases of perigastric lesions it is necessary to resect and liberate the organ

The author preserves the vessel of the great curvature. He described his method of vascular decortication in a previous article

W. A. BRENNAN

**Barber W. H. Annular Segmental Gastrectomy**  
*J. Surg. Phila* 1917 lvi 672

The author reports the results of a clinical and experimental study of the comparative motor activity of the stomach following segmental gastrectomy and following the removal of a saddle shaped piece from the lesser curvature. His results include observations in three cases of segmental gastrectomy for ulcer. The findings seem to agree with those recorded in his experimental work.

In his animal investigations the author used the open laparotomy method and his results show that thoracic section of the vagi causes a more rapid and superficial fundic wave with an independent forcible pro and anastaltic pyloric wave. Triangular gastrectomy was followed by more rapid and more superficial fundic waves and more superficial in complete pyloric waves.

Segmental gastrectomy was followed by normal or stronger fundic waves and independent forcible pro and anastaltic pyloric waves. Thoracic vagotomy produces an effect similar to segmental gastrectomy due probably to the cutting off of the inhibitory effects of the vagi upon the motility of the pyloric end of the stomach. If the behavior were due to the mechanical effects it would seem that the greater resultant wound from segmental gastrectomy should produce the most superficial waves and the conclusion seems to be justified i.e. that the relationship is probably dependent upon the discontinuance in the neuromusculature and not to the mechanical results of the respective operative procedures.

GATWOOD

**Achille F. A Rational Constricting Method of Pyloric Exclusion** (Di un metodo costrittivo razionale di esclusione del piloro) *Ga d'osp ed*  
*in* Milano 1917 lxxviii 075

The author thinks that constricting methods of excluding the pylorus are preferable to ligature. The weak point in most ligature methods demonstrated both experimentally and clinically is the fact that there is a tendency to canalization and refunctioning of the pylorus.

The author thinks that satisfactory constriction would be obtained from the use of a rubber tape band. Calabrese some time ago made a pyloric exclusion in a dog by constricting the region of the antrum with a strong rubber band. The animal had had a contemporaneous gastroenterostomy. It lived and was killed six months later. Examination showed that the pyloric closure was perfect in the strictured region and those signs of reaction observed when other materials were used

were not seen. The constricted point was observed as a projecting ring covered with newly formed connective tissue.

The author points out that rubber may remain for a long period in the human tissues without undergoing any alteration. He thinks it would be better to use tape than the rubber band used by Calbrese as it would be more regular and uniform pressure on the parts. The tape is fixed at the selected point by Lembert suture which assists in the connective tissue forming activity about the ulcer. The constriction should not be too severe.

The author thinks that Calbrese's experimental trial is sufficient to show that the method might be applied to the human subject. W. A. BRENNAN

**Pain in the Stools in Duodenal Ulcer** J. P. Bloch, 7, 94

The author believes that when a subjectively characteristically obtained finding of occult blood in the stool warrants a confident diagnosis of duodenal ulcer. One must feel certain of having excluded that a source of food for hemorrhages in the part of the gastrointestinal tract from hemorrhoidal and in the case of female patients some blood occasionally present in agnate discharge.

Adler's benzidine test has registered against it a few objections but it embraces many commendable features as to place it first in consideration in the view of the author. In this test an alcohol and ether extract is necessary.

In the clinical diagnosis was rightly confirmed at operation. Outline benzidine tests are positive and negative of the cases.

Common operation based upon established laboratory investigation that the benzidine is more delicate than the guaiac test. It is possible to confirm them in the present short series studied. It is not denied however that a source of blood in blood in the intestinal lumen which guaiac has failed to detect on occasion is later revealed by this finding it appears advantageous to conduct both tests upon the same stool.

In conclusion the author makes the following suggestion. The blood in the feces is a finding all positive when the gastrointestinal sources are absolutely eliminated in the case of duodenal ulcer. The examinations should include a guaiac test, the benzidine test, a spectroscopic search for hæmatin and a microscopic search for hæm crystals.

E. C. ROBERTS

**Garrick R. P. Acute Torsion of the Small Intestine** J. R. Y. 1, 74

A slender while in the tenth decade seized with abdominal vomiting and diarrhoea. When examined in the hospital he was pale, his pulse was 40, there was profuse perspiration and the abdomen was soft but not distended. He was treated

as a case of dysentery. He died thirty-six hours after onset of the symptoms.

On autopsy acute torsion of the whole mesentery of the small intestine was found. With the exception of the duodenum together with nine inches at the upper end of the jejunum and three inches at the lower end of the ileum the entire length of the small intestine was of a deep plum color and dilated enough to fill the distended abdomen. The lumen was filled with ordinary intestinal contents and with much blood and gas. The surface was smooth and glistening. There was no peritonitis.

Behind the dilated intestine could be felt a hard pebbly structure about the thickness of the finger. It held tightly over the bodies of the lumbar vertebrae from above downward to the right. This found to be the mesentery of the small intestine twisted on itself from left to right. It required three and one-half turns to undo the twist. No apparent cause could be found for the twist. There was no sign of gangrene in the small intestine. The engorgement with blood was due to interference with the mesenteric circulation. Complete occlusion of the flow in both veins and arteries.

Weible and Nathankat collected from the literature 66 cases of acute torsion of the mesentery of the small intestine. Only 2 of the cases did the torsion amount to complete turns. The case now reported is the only one with a unique record of the amount of the twist. 60. W. A. B.

**Quarrell's B. R. troglodyte Intestinal Gangrene with Paucity of Referral to the Pathogenesis** (C. T. B. L. T. D. D. L. G. T. L. T. G. A. M. D. N. A. P. L. 9, 7, 83)

Quarrell successfully operated upon a case of gangrene of the intestine and appendix due to strangulation in a crural hernia. The content of the hernial sac were composed of the cæcal ampulla, the base of the appendix and about 35 cm of the small intestine. The intestinal segments were a good state of nutrition but the appendix and the medial tract of the small intestine 50 cm long underwent necrosis. Reoperation of the appendix and of the loop of necrotic intestine with end-to-end anastomosis resulted in a prompt recovery.

Quarrell also reports a second case in a thirty-year-old who thirty years before had been operated upon for a bilateral scrotal hernia. The hernia recurred on the left side but was easily reducible. Recently the occurrence of acute symptoms led to the operation now reported. The hernial sac was opened after difficulty and found to contain three intestinal loops, two of them about 10 cm long and the third about 5 cm. They were engorged and slightly chymotic. The intermedial loops were outside the sac the upper part of the cecum but the lower loop markedly necrotic. The

involved intestine measuring 98 cm. was resected and a lateral anastomosis done. The patient died in collapse the following day.

From 1880 to 1894 three cases of strangulation of the intermediate intestinal segment in a hernia were reported but it was only in 1895 that Maydl introduced the term retrograde strangulation to indicate the phenomenon by which the strangulated part of the organ is found in the abdomen while the remainder usually in normal condition is strangulated in a hernial sac.

Since then a fair number of cases have been reported in German and Slavic literature but few in English, French and Italian.

Retrograde strangulation has been observed in inguinal, crural, umbilical and other hernia. It is most frequent in inguinal. In regard to sex and age it occurs in about seven men to three women and at the ages of forty to sixty years generally. There are usually two intestinal loops in the sac. The segment in the sac is usually of the small intestine and is from 60 to 70 cm. in length. Wendel collected 65 cases. In 12 cases in which the loops were only very slightly altered the external loops were found intact in 4 cases slightly altered in 3 and gangrenous in 5. In 6 cases in which the intermediate loop was moderately altered but not gangrenous the external loops were intact in 15 slightly altered in 9 and necrotic in 2. In 2 cases in which the intermediate loop was necrotic the external loops were normal in 8 slightly altered in 11 and gangrenous in 8.

Quarella reviews the literature at length with a view to discovering the pathogenesis of the condition and summarizes the theories put forward by various authors. He has made animal experiments on guinea pigs to determine the pathogenesis of retrograde intestinal gangrene. He arrives at the conclusion that the essential cause of this is the strong venous congestion the hemorrhagic extravasation and the parietal and mesenteric thrombosis of the internal loop due to severe obstruction of its return circulation. Such difficulty in the circulation is favored by the anatomic disposition of the blood supply. The frequent integrity relative or absolute of the external loops when there are no unfavorable complications may depend on the peculiar mode of the strangulation.

The prognosis of retrograde strangulation is generally more grave than that of ordinary strangulated hernia and the mortality is accordingly very high. In unoperated cases a fatal issue is certain. In 36 operated cases in Wendel's collection the mortality was 75.6 per cent. In 24 of them in which the intestine was resected the mortality was 62.5 per cent. Better results are obtained in cases operated upon early. In the cases which recovered the time elapsing between strangulation and intervention was about twelve hours and in the fatal cases about fifty-two hours. Palliative operations have in general been failures and in intestinal resection is always to be the choice if the

patient's condition permits it. The gangrenous condition may demand extensive intestinal resection. In 5 of the cases in which more than two metres of the intestine were resected there were 3 recoveries.

W. A. BRENNAN

Scott J. R. Tuberculosis of the Appendix. *Ann Surg Phila* 1917 lvi 648

Since the recognition of the disease by Corbin in 1873 tuberculosis of the appendix has attracted the attention of both the clinician and surgeon. However there are but 44 articles to date upon the subject 9 of which have been contributed by physicians of the United States.

The disease is found more often in males than in females the ratio being as 3 to 2. Most of the cases reported have occurred in young adults.

The existence of primary tuberculosis of the appendix has been denied but Beck reports the autopsy findings in a case in which there were no evidences of tuberculosis elsewhere. These cases are probably implantations favored by fecal stasis which often occurs in the appendix.

The secondary form is much more common. It may arise as a direct extension from tuberculous adnexa or from ileocecal tuberculosis or by invasion through the blood stream from any remote focus as the lungs.

The diagnosis is difficult although about 0.5 per cent of appendices surgically removed are tuberculous. It rests upon the demonstration of an afternoon temperature, progressive loss of weight, evening sweats and pain and tenderness in the right lower quadrant. The prognosis is unfavorable except in the very rare primary form. The treatment is operative whenever possible although active pulmonary lesions contra indicate operation.

Three forms are usually described the milary, the ulcerative and the hyperplastic. GATEWOOD

Porter L. Appendicitis in Childhood. *A Study of 100 Cases*. *Calif St J Med* 1918 xvi 6

The author in a study of 100 cases of appendicitis in childhood found that a large proportion of the children were in their third year. Sex incidence was about equal. Pain referred to the right lower quadrant of the abdomen occurred in almost all cases. General abdominal pain occurred in 57 cases sometimes preceding and sometimes following the pain referred to the right side. Iain also occurred in the epigastrium, bladder region and right leg accompanied by characteristic tenderness on moving the limb. Vomiting was absent in 17 cases. Chill occurred in 15 cases.

The temperature ranged from normal to 104 degrees, the pulse from 80 to 160, the respirations from 22 to 70. Leucocytosis varied from 8,000 to 25,000. Differential count showed a polymorphonucleosis of from 45 to 90 per cent.

In 37 cases rupture of the appendix occurred before operation, 23 having general peritonitis.

recove y followed early and free drainage In 60 case the e v a s history of p e v o u attacks of ton illit A apid progre s to ga gren and per o r t n is much mo e common before the fifth year than later n l f e 3 p e cent of p t i e t s f v years old ho ed perfo ated appe d ces n contr t to 8 p e cent bet een ten and fifteen year

D ph agmatic pleur y the only con l i t it may be really d f i c u l t to d i f f e n t i a t e o t h r con d i t s e s p e c i a l l y a b d m a l a i n i t i s m a y b e confu ed i t h i t Parent h u l d b e t a h t i s e e a pot n t i a l appe d i c t i t e v e r y case of a b d o m n a l pain H H R H

Arn Id I A Suppur ti e App ndl tis I t i J S s 9 344

The autho h ecclntly o ed t o c a s e s h e r e the pus bu r w e d n n r d i n t o the pel al upward behind the lon pointing n the groin and o e r the cre t of the l m ren l e n g t h d i f f i c u l t to d e t e m e e t h e r the e v a s a i l a c r appen d i u a l e s s

The f r i t h e r the ab ce from the median line the more fav r a b l e t h p r o g n o s i s The mo t i m p t a n t phase of the blo d count a relative n c r e a s e n the poly u c l e a r c e l l s W t h l i t t l e o r n o l e u c o c y t o t l i a p o s i t i v i n d i c a t n o f n f l a m m a t i o n Th p e r c e n t a g e of i n c r e a s e i n p l y n u c l e a r c e l l a e v t h the e v e n t s of the i n f l a m m a t i o n I f b e l o e e t v n e i t h e p n g a n g e n e s t o l x p e t e d

In connect t l o p e r a t i o n e p o c e d r e f e w d n t s s e e m p p o p i t e

Don t g e t too close to the inner margi f t l a b c e s s

Don t t r y t o r e m o v e t h a p p e n d i c i t i s i n a l l c a s e

3 Don t t r y g a t e

4 Don t t r y t o d r a i n the p u c a v i t y i t h g a u z e

5 Don t k e e p the patient too long i n b e d

I t b e l i e v e d t h a t h e r e f t h i c l a s s of p a t i e n t s h a s b e e n k e p t t o o l g i n t h e c u m b n t p s t o n W h i l e i t w o l d b e d i f f i c u l t t o t a t e j u s t h a t l g t h o f t m e t h e y s h u l d r e m a i n i n b e d a s e a c h i n d u r l c a s e m u t b e c o n s i d e r e d u p o n t m e r i t s f o m s t t e n d a y s w o l d s e e m q u i t e l o g e n o u g h i n t h a v e r g e c a s e E v a r d L C R

Walsche D A J S n g l S u t u A p p e n d e c t o m y V I M J 9 8 8

The anatomy of the n f u n d b u l o p e l v i c l g a m e n t i n i t s a p p e n d i c u l a r e l a t n i n d i c a t e s the r e m o v a l f the a p p e n d i c n a l p e l v i c p e a t i o n s B y the e l e c t i o n of a t e c h n i q u e c a l l i n g f o r s p e e d s i m p l i c i t y and g e n t l e m a n i p u l a t n the a u t h b e l e t h a d d e d r i s k of the o p e r a t i o n t o b e l e s s t h a n the f u t u r e k o f a n a t t a c k of a p p e n d i c i t i a d a v o d m n y f the f a c t o s t h a t m a k e s e c o n d a r y o p e r a t i o n d f i c u l t and d a n g e r u

O n c o m p l e t o f the p e l i c w o r k the patient f r s t p l a c e d i n the h o r i z n t l p o s t u r e The t i p f the a p p n d i c i t y p i c k e d u p n a c l a m p A l o n g s i x t e e n o r e i g h t e e n i n c h u t u r e c a r r i e d t h o u g h the

c l e a r t r i a n g u l a p a c e a t the b a s e of the a p p e n d i c and t i e d t h u s l g a t i n g the a p p e n d i c a r y a r t e r y The m e e n t e r y i s t h e n c u t f r e e l e a v i n g a s m a l l t u m p

C o n t i n u e s w i t h the a p p e n d i c a t i t s b e i n g the l o n g t u d i n a l t r i a of the c a e c u m O n e f o u r t h of t h e n h f m t h i s b a s e the n e e d l e i c a r r i e d w i t h a L e m b t C e r r y t i t c h a s a f i x t o n s u t u r e t o p r e v e n t t h l g a t u r e f r o m s l i p p i n g The n e e d l e i n w c a r r i e d b a c k a n d i n e r t e d t h r o u g h the m e s e n t e r y b e t w n the f i r t l g a t u r e and the b a s e of the a p p e n d i c a n d t i e d t o the p r o x i m a l e n d of the f i s t k n o t The a p p e n d i c c l a m p e d c u t and the s t u m p t r a t e d i t h c a r b o l i c a c d and a l c o h o l

A n t e r i o r t o the m e s e n t y a n d u p o n the l o w e r p o r t i o n f the c a e c u m r u n n i n g i n the d i r e c t i o n of the d u m the e a l w a y s a f a s c i a l f o l d c a l l e d the f o l d of T e This f o l l o w s n o w p i c k e d u p o n the n l l e and c a r e d e r t o the m o s t d e p e n d e n t p o r t i o n f t h c a e c u m h e r e t i s f i x e d w i t h a L e m b e r t C e r y s u t u r e n d t e d T h c o v e r s the t u m p f the a p p n d i c a n d c o m p l e t e s the o p e r a t i o n q u i r g i n a l l t h e r e s i r v m n u t e s t m e

The a u t h o r c o n c l u d e s t h a t d u e t o i n t e s t i n a l o b t u r a c t i o n f r o m a n a u t e g a n g r e n o u s a p p e n d i c i t y w h i c h m e u n d e r h i s t r e a t m e n t s u f f e r i n g f r m a p p e n d i c i t y c o m p l i c a t e d w i t h o b s t r u c t i o n A p e r i o u s l y t e r e c t o m y h a d b e e n d o n e The a u t h o r a l s o b e l i e v e s t h a t i f the a p p e n d i c i t y e v e y p e l i c p a t i o n a n d f o r s p e e d s i m p l i c i t y and p e r v e n t i o n f h a k h a d e v i s e d the s i n g l e s u t u r e o p e r a t i o n H e h a s f u r l l u t r a t i o n of the p e r a t i o n

L n d s m n A A T l D a g n s t c S i g n i f i c a c o f B l e d i n g f o m t l R e c t u m M d R e 9 8 6 3

The a u t h o r g i v e s the a l o u c o d t i o s w h i c h m a y a u s b l i n g f m the r e c t u m These a r e c l a s s e d a s u g a l o m d i c a l

S u g i c a l c o n d i t i o n m a y b e d i v i d e d i n t o

L c l c n d i t i o s n a m t a c u t e l y s u r g i c a l T h e y m a y n e c d e i n t e r n a l h a e m o r r h o i d s u l c e r a t i o n s e i t h e r (a) s i m p l e (b) p e c i f i c a s t u b e c u l o s y p h l g n o r r h o e a n d d y s e n t e r y p r o c t i t i s p o c t c o l i t e t e r c o l i t i s i m p l e a n d s p e c i f i c t u m o r s b o t h (a) b n i g n a s f i b o m t a l i g m a t a e t c a n d (b) m a l i g n a t a c a r c i n o m a p a p i l l o m s a r c o m e t c t r u r e p e f c a d n o n p e c i f i c p r o c i d e n t i a f i s u e r y p t h e l m t h i a s d i e t i c l a g a s t r i c o d u o d n a l l e e r i m p a c t i o n c h n c c o n s t i p a t o n

L o c a l c o d t i o n s a c u t e l y s u r g i c a l T h e e n c l d e f o r e g n b o d e o l v u l u s i n v a g i n t i o n t a n g u l e d h e r n a p o t a l r m e c e t e r i c t h r o m b o i t y p h o i d f e e a p p e n d i c i t y r u p t u r e of a n a n u r i s m p o s t p e r a t i v e b l e e d i n g f o l l o w i n g o p e r a t i o n o n the r e c t u m a n d c o l n a b c e s e

M e d i c l c o n d i t i o n s m a y b e d i v i d e d i n t o

M e c h a n i c a l c a u s e s i n c l u d i n g (a) h e p a t i c d i s a c e (b) c h r o n i c n e p h r t (c) c a d a d e c o m p e n s a t i o n (d) a r t e r i o s c l e r o s i s a n d c o d i t o n s a c c o m p n i e d b y h g h b l o o d p r s u r e

2 Defective blood states (a) hemophilia (b) purpura (c) leukemia (d) pernicious anemia (e) scorbutus (f) icterus

Toxic condition (a) from without i.e. poisoning by arsenic mercury phosphorus sulphurated hydrogen nitrobenzene etc (b) from within i.e. scarlet fever yellow fever cholera malaria septicemia pyemia

A very careful history should be taken of every patient particular emphasis should be placed on the age occupation past or present illnesses or operations habits presence or absence of protrusions or pain and any loss of weight One should determine the character of the bleeding the length of time it has lasted its relation to defecation the relative quantity lost whether expelled pure or mixed with pathological discharges together with a very complete physical examination of the patient

There is but little direct connection between loss of weight and loss of blood but there is a very close relation between loss of weight and the cause of the loss of blood There is a great loss of weight in carcinoma multiple polyposis chronic enterocolitis or coloproctitis even with little bleeding small loss of weight in pile polyp and non malignant tumors even with considerable bleeding It must be remembered that malignant growth may be engrafted on benign ones C. A. BOWERS

Davis C. B. Cancer of the Rectum *St. G. Clin. Chicago* 1911 1

The choice of operation depends on the site of the growth If the disease is limited to the anal epithelium it is not necessary to remove the ampulla or the gland behind the ampulla The operative technique for cancer of the rectum is given as follows

Through an incision in the perineum a ligature is carried around the bowel above the level of the anal canal The sphincter is incised anteriorly and posteriorly and segment is turned inside The ampulla is resected and the bowel is brought down and attached to the anal sphincters

Various methods of termination of the operation are employed after removal of the tumor mass The anus may be reconstructed or a rectal or abdominal anus may be formed Where an abdominal anus is formed by leaving the ampulla is a blind pouch mortality and shock are lessened

Tumors at the rectosigmoid junction may be treated by removal and end to end anastomosis or abdominal termination of the bowel End to end anastomosis carries a high mortality and frequently results in fecal fistula

In all cases of cancer of the rectum it is well to open the abdomen to determine operability Malignant involvement of the gland of the mesorectum or of the uterus or vaginal wall is a contraindication to operation Involvement of the liver prostate or scirrus contraindicates operation The immediate mortality in posterior route operations is lower than in the combined method but a larger

number of ultimate cures result from the combined abdominal and perineal operation

In constructing an abdominal anus by carrying the gut upward under the skin before anchoring a better functioning anus is obtained

Many cases of cancer of the rectum are diagnosed as hemorrhoids Digital or proctoscopic examination establishes the diagnosis I. E. BIRKHOFF

Ochsner A. J. Carcinoma of the Rectum Excision Transplantation of the Sigmoid into the Perineum Technique of Operation *Surg. Clin. N. Y.* 1911 1 1213

The patient was fifty three years old Passage of blood and mucus per rectum with some tenesmus for the preceding six weeks were the only symptoms Examination showed that 4 cm. above the internal sphincter there was a hard cauliflower like mass encircling the lumen of the bowel A diagnosis of carcinoma of the rectum was made

A colostomy opening was made by cutting the skin superficial fascia and splitting the external and internal oblique in the direction of their fibers The descending colon was drawn through and anchored by passing a strip of gauze under the loop of bowel Through a median incision the bowel was grasped transversely with two heavy clamps 5 cm. above the mass and cut The lower segment with the peritoneum and fat was dissected down to the rectum

The patient was now placed in a lithotomy position and an incision made encircling the anus The levator ani was severed on each side and the tissues dissected upward with the finger All bleeding points were ligated step by step The mass was removed and the bowel brought down and sutured into the middle of the perineum Lateral cigarette drains were inserted

A precaution in after treatment is not to permit the patient to lie on his back The bed is elevated and the patient kept on one side or the other

A glass tube substituted for the gauze to anchor the colon in a colostomy incision and a colostomy opening made in forty eight hours if necessary This protects the operative field from contamination until healing is complete I. E. BIRKHOFF

Landsman A. A. Operative Methods for the Cure of Hemorrhoids *A. M. J.* 1918 vol. 59

Divulsion of the sphincter is indicated in cases of general engorgement and congestion in the case of a small tightly contracted anus in hypertrophy of the levator ani and the sphincter ani Divulsion means the stretching of the sphincter until the fibers have lost their tonicity but not a tearing of the fibers Neurological examination for tube should be made in all cases before operation to avoid cases of incontinence

Injection with various solutions is not safe or effective Cases of sloughing and gangrene may occur The application of caustics is condemned

Crushing operations and excision without suture



may result in secondary hæmorrhage. The clamp and autry operation is not used as extensively as formerly because of the occurrence of secondary hæmorrhage.

The ligature operation is the one of choice. The Whitehead operation is the total removal of the hæmorrhoidal bearing field. It frequently follows by stricture. Infection is also liable to occur.

The electric cautery is applicable in small hæmorrhoids.

The complications occurring in hæmorrhoidal operations consist of secondary hæmorrhage, cystitis, epistaxis, pain, disturbance of bladder function and spasm of the levator ani muscle.

I. E. B.

## LIVER PANCREAS AND SPLEEN

Gifford J. P. C. Primary Cancer of the Liver in Infancy and Childhood. *J. M. S.* 98:19.

The patient aged 2 months had a negative history. Previous health was good except for some degree of anemia supposed to be dependent upon indigestion and a constant tendency to constipation. The interprevous appetite had been normally great although she would take little other than milk and for some time he had half attack of vomiting nearly every morning. The condition had improved. Fifteen weeks before the child was born her father accidentally discovered a lump which could be felt beneath the costal margin on the right side in front.

Examination showed a well-nourished infant with slightly plethoric just below the costal border midway between the midline and the right mammillary line was a visible prominence which on palpation was found to be a hard smooth mass apparently without firm degree. It appeared to be connected with the liver. Manual palpation in the epigastrium produced no movement of the mass. It changed position with respiration. The hole in the liver was decidedly enlarged and its edge could be felt as far as the left mammillary line to the costal border.

At operation the right lobe of the liver was in full view and situated in its substance was a dark gray gelatinous capsule covering the size of a large orange which projected slightly above the surface of the gan and extended in depth through the entire thickness of the lobe being visible upon the under surface when the liver was lifted. There was no demonstrable infiltration of the hepatic tissue beyond the capsule of the growth or of involvement of any organ as far as could be seen. No adhesions were present. In the stomach the capsule showed a soft hitherto unobscured much resemble in color and appearance the tissue of the thymus gland or pancreas. Inasmuch as the case appeared to be an inoperable one the wound was closed.

The gross histologically was a carcinoma simple but at one or two points the attempts

at tube arrangement of such a character that the growth originally may have been a cancer of the bile duct.

The mass continued to grow in a downward and forward direction and later toward the left hypochondrium the abdomen finally becoming distended by it. At times the increase of size would appear to be rapid and then would follow periods of quiescence. As time passed the superficial veins grew more prominent until finally the larger were about the size of a lead pencil. The tissue about the navel became discolored and very thin. No ascites or edema were present. There was sleeplessness and increasing debility but apparently little pain. Death occurred a few months later.

E. VARD L. CORRELL

Fowle W. F. Stricture of the Gall Bladder. *S. G. Phil.* 97:169.

The author reports a case of stricture of the gall bladder characterized by striking symmetry of the two portions. He gave the name dumb bell gall bladder to this particular variety. He considers undoubtedly a case of cholecystitis chronica cystica.

Stricture of the gall bladder may be divided into (1) the congenital and (2) the acquired. The latter the congenital type as (a) annular (b) those in which the folds of the inner layers occlude the lumen partially and (c) those in which the fundus is folded upon the body of the gall bladder. The latter mentioned is the most usual type.

The acquired strictures may arise from destructive lesions beginning in the mucosa and causing any degree of constriction from a very slight narrowing to a complete obliteration of the lumen of the connecting stalk. Acquired strictures may also arise from intramural infections pathologic processes beginning in the erosions and from adhesions existing between the gall bladder and other organs of the abdominal wall. Other causes are perforating wound and malignancy.

The author's case gave a definite history of proptuberant and the diagnosis was not made prior to the operation. The gall bladder contained no bile but merely a few drops of white cystic fluid and two marble sized uric acid stones. G. R. E.

Matin H. H. Gall Bladder Surgery. *J. I. S. M.* 43:97453.

This article is historical in nature and the author follows in a clear and concise manner the advancement of gall bladder surgery.

The teachings of Galen were accepted until the beginning of the seventeenth century. He held that the liver was the seat of the mind that it made the blood and that the veins had their origin in it. After Harvey's discovery of the circulation in 1661, Tessel's discovery of the thoracic duct in 1662, and Perquet's discovery of the lacteal vessels in 1664, the theories of Galen were attacked and to a certain degree overthrown.

The first successful removal of gall stones was noted in 162 and the first successful cholecystectomy was done on a dog in 1630. The author's conclusions that the common duct dilates after the removal of the gall bladder has been verified by Judd and Mann.

From 1687 to 1742 as a result of injury to the abdominal wall involving the gall bladder gall stones were removed three times. In 1742 Flett devised an operation to remove stones in a distended gall bladder which he determined was adherent to the abdominal wall. In 1774 Block thought that the adhesions to the wall were necessary and in these cases applied caustic potash over the gall bladder and after the tissues were destroyed down to the gall bladder he opened it.

In 1867 Bobbs of Indianapolis made the first successful cholecystostomy. In 1878 Kocher did a two stage operation of draining the gall bladder. It was not until 1882 after Langenbach did a successful cholecystectomy that gall bladder surgery received much attention. In 1888 Bevin published an extensive review of the anatomy of the gall bladder region. In 1900 Summers advocated inverting the cut edges of the gall bladder about the drainage tube and stitching the gall bladder peritoneum to the parietal peritoneum.

In 1900 W. J. Mayo advocated the removing of the mucous membrane of the gall bladder where the pathology is extensive. Loekker stated that the gall bladder should be treated as the appendix and removed if there was acute or chronic inflammation. Means of Cleveland, Richard on and Marcy of Boston and Denver of Philadelphia advocated early operation while Senn was in favor of operating only to save life.

In 1901 Halsted announced that he could produce pancreatitis by forcing bile directly into the pancreatic duct.

Through Rosenow's work it has been learned that the infection is not alone in the bile but the tissues of the gall bladder as well.

In 1916 Deaver announced that 65 per cent of his failures were due to the non removal of the gall bladder. Mayo stated that cures following cholecystostomy were 53 per cent that of cholecystectomy formed 71 per cent. C. A. BOWERS

#### Torrance G. Cholecystectomy with a Report of 65 Cases Operated upon for Gall Bladder Disease. *Am J Surg* 1917 xvi 323

The author reports operations upon 65 cases of gall bladder disease in 60 cases of which the gall bladder was removed and in one case a cholecystenterostomy was done for persistent fistula of two years duration. Seven cases had been drained previously. There were 17 males and 48 females.

In animals which have no gall bladder there is found a large common duct. Judd and Mann in experiments found that the ducts usually became dilated within sixty days after removal of the gall bladder. All of the ducts were dilated except those

in the liver itself. For a time the pressure in the ducts is increased until the muscle of Oddi is overcome and then the bile flows continuously. When this muscle is dissected out at the time of operation there is no dilatation of the ducts.

Meltzer considers the muscle fibers of the gall bladder and those of the papilla as antagonistic. The vagus seems to contain motor fibers for the sphincter of the common duct and inhibitory nerve fibers for the gall bladder.

That the gall bladder is used as a reservoir is questioned by many. The most common theory is that the gall bladder contracts rhythmically eight to ten times per minute and overcoming the sphincter of Oddi forces the bile into the duodenum.

Mayo Robson lays stress on the importance of always preserving the gall bladder where there is any disease of the pancreas.

Rosenow has shown that infection is brought to the gall bladder through the blood stream, the bacteria become lodged in the capillaries of the wall of the gall bladder and infarcts cause stasis, infiltration and thickening of the mucous membrane with necrosis.

Gall stones are rarely ever found in the very acute and severe infections of the gall bladder but are the result of a previous mild infection. Seventy five per cent of gall stones are found in women and in 80 per cent of these the symptoms develop during pregnancy.

Bevan says cholecystostomy is done in about 90 per cent of cases, cholecystectomy being reserved for simple cases with little gall bladder change and no cystic duct stones.

Lund advises removing the acutely inflamed and especially the gangrenous gall bladder and those where there is an acute perforation.

C. A. BOWERS

#### Mason J. T. A Pancreatic Cyst Removal of Three Fourths of the Pancreas. *Recovery*. *Northwest Med* 1918 xvii 4

The author's patient was a married woman aged twenty four who complained of cramp like pains all over the abdomen, pain radiating to the left shoulder, frequent vomiting and constipation. Physical examination revealed in the lower epigastric and upper umbilical regions a tumor which was very tender and immovable. Previous to operation this mass enlarged very rapidly and at the time of operation it was about the size of a baby's head. The patient had relief from pain only by lying on her left side with her knee as near her chin as possible.

Operation through a right rectus incision revealed the stomach, gastrocolic omentum and transverse colon flattened out over the mass and adherent to it. The tissues were all edematous, even the parietal peritoneum. The approach was made through the mesocolon and the cyst was tapped, removing four quarts of viscid fluid.

With the exception of the head, the entire pan-

creas ly ng in this cyst t was gelati ous in appea nce and p st all po ibility of e toration. By lo sening the panc ea fr m beh nd two chrom c catg t sutu e e e lpp d ound it one at the t l the other at the ne k a d rb ut three quarters of the pancre moved. The drainage tube was left by making th dffe ent purse t ing s sure one above an ther nd then the fat of the omentum va tuck d a ound th s.

The tube c t nued to drain fo fo ty three day nine d o e half ounces b ng the larg st amount re ed fom the t b and ne and o e half the sm lle t in any t enty four hou. The pati nt left the h spit l n the fo tieth day p actically ell.

P G SA RV JR

**K nn dy J and Bu g W E. Th Effect of Pan creatomy on th Catal Content of th T s ues** *I / I t M d* 97 89

Th uth ment on the oll o k r wh re gnized the c ncd ce f d abic symptoms and les n of the p nce a but the literat e the subject i o e ou that n attempt made to revei it.

Th pr ent nve tig t wa begun n an attempt t fnd n planat n f the defect o impc fct dat n n diab te. The auth found th t the amount of o idat the dffe ent mus le wa di rectly p op t n l to the mount f catala e that by inc ca ngo l e g the am unt f i r k and henc oxid tion in a mu cle there wa a c cre pond ng cre se o decre e in the c tala e c n tent. Sin in all the i st n e cited by them v h o id t on a nce as d o dce a ed o ren l d defect e the wa a co e pond g increas d cre n catalase the o clu d a n that there e t a v e y clo e r l t n h p bet en t l e co tent and m u t of oxidation.

Th r m m l used i th n v st g t on w re l g. Se e al of these a mal ere depancreat d. E am nt n of the ur ne on the f t day after the ope at on ho ed the p e nce of uga in all the depan eat el anim l. The l nget t time ny a mal a pe mitted to l afte the ope ation w 3 l y s while the sh r t e t a 6 d y s. Th e th t h l l ed 3 day n cry b d condition d h d l g e am unt f ugar n the urine. Afte th anim al vere eth ized the blood v ssel re a h d vith l g quant ty f o o p r c n t s d m hl de until f e of blood a wa n dated by the f ct that the a h ater gave no test for catala e. The blo dle s l e an l h art re then mo d a d g and up ep atly in a hashin m chine.

The cult f the dete min t on a e g en by the authors i t ble of catal se d te mination in normal and d abet c l e nd hea t nd by com pari the d t a t c o b een that the c tala se content of the livers of th l abeti m l was dec e sed per cent an l th t the cat lase tent of th hea t w s decr c l 4 p e cent over th t of n r m l anim al.

The utho found that the catalase of the t s ues of depancreat d dog decreased during the first five or s d y s at v hich time a certain low level was rea hed nd ma ntained and they also present evide nce ho that catalase is formed in th li er and th t th i normally given off to the blood as re ult of stimuli ceived ove the splanchnics.

The auth r ummar e their results as follow s. E ti p t on f the pa ceas decreased the catalase content f the live by al t 7 per cent whch re ulted in the decrea ed output of catalase into the blo d nd hence a le ened supply to the t s ues. The de ea el cat l e content of the tissue may ac nt f th mpc fct o defective o dation in d abet c s n tle m u t and intensity of oxidatio o in pa al ly h k l ith catalase.

GEORGE E. BEIL

**Bu ket W C Cl ng s in th P riph l Blood**  
Con equ nt up n the D vers n f th Spl nic  
Bl d into th General Cl ul t on *J E p*  
*M d* 9 849

A e ic f the literature evealed th fact that umer u n estig t s had attempted to d cover the f t on f the pleen by mean of a study of the spl c circulat n itself a d Burket draw atte tion to Eck s m thod of d e ting the portal and sple c blood into the gen al circulat n and the va io theories ad anced by other inve tigato s in rega d to the function of the spleen that we e based upon the distr bution of the splen c c iculation as determined by anatomical dissection in animals and in humi ca e. His sea ch of the literature however eveal ed only on stance in which a study was gu en of the per phe al circulation fter the splenic blood alone had been d e ted int the ge eral circula tion. On acc unt of the fact that dive sion of the portal blood into the nfe ior vena cava blood from all th tributa es of th portal e n was included it seemed to Bu ket adv ble to m ke a thorough nd c reful study after the plenic blood alone had been thro v into the ge al circulation. He repo s upon se es of e pe ments because of the rath r unform re ult obt ined in the h e large dogs that e e st ded and the simple method that w ued to divert the spl nic blood into the general circula tion.

The m thod employ d con i ted in the study of the fve dog ove a suffic tly long period befo e ope ation n orde to estab l a curate controls fo e h dog and after the splenic blo d had been d ve t ed nto th general c iculat on this study was re peated ve a pe l varying from one to four month durat on in the dffe ent anim l. I addi tion two eeks before the e d of the per ment th dog were vitally stained to m m m vith try pa bl e and finally they were k lled in orde to deter m e the gr s and h tologic find ngs.

At th time of ope rat n vith th e nim ls unde eth r anasthe the spleen s first m su ed th gh a l f t rct u inc sion and a small h i tolog c control ect on rem el. After the plenic and the

left renal vein had been divided between double ligatures a lateral anastomosis was made between the renal and splenic veins using fine beaded black silk oil technique and a Peet three bladed spring jawed blood vessel clamp and lastly all possible collateral circulation with the spleen was divided especially the communicating branches between the spleen and the stomach. The animals recovered rapidly from operation and the wounds healed by first intention in every case. The dogs kept in splendid general condition throughout the experiment and several of them were operated upon a second and a third time in order to verify intra abdominal conditions with the result that no collateral circulation and no intra abdominal adhesions were found and the anastomosis was working.

In a series of tables and charts the author gives in great detail the results of his observations and from his experiments he draws the following summary.

The principal change in the peripheral blood consisted in the prolonged increase in number of the transitional white blood cells, an active brief stimulation of the polymorphonuclear neutrophils which were later relatively decreased in number in four cases in three dogs a late rise in number of the mononuclear and eosinophilous cells and in one dog of mononuclear cells alone.

The normally high differential percentage count of polymorphonuclear eosinophiles in dogs would be expected on account of the numerous parasitic infections which they usually have.

The splenorenal venous anastomosis offered a simple and satisfactory method of diverting the splenic blood into the general circulation because it was easy and produced no gross abnormal intra abdominal changes and the vessel normally lay parallel to each other and were readily approximated without tension.

The operation was successful in every case the animals did very well after operation and were healthy and active. No noteworthy histologic changes were observed in any of the organs or tissues. There was no essential change in bile production that could be detected by jaundice. The urine and stools showed no changes.

GEORGE E. BEILBY

**Norris C. Symmers D. and Shapiro L. Banti's Disease.** *Am J M Sc* 917 cl 893

The authors state that Banti's disease as an entity has no legitimate claim to recognition and that the term long covered a conglomeration of conditions which are gradually being recognized. By an extensive study of abundant anatomical material the authors conclude that syphilis adequately fulfill all the requirements enumerated by Banti.

Their conclusions follow.

1. The so called Banti's disease is neither an independent clinical nor anatomical entity and the designation should be eliminated from the nomenclature of splenic pathology since it not only

carries with it the objections customarily urged against the surnamed diseases but is in reality a manifestation of visceral syphilis. This conclusion is based on the following facts.

(a) The later stages of acquired syphilis are occasionally attended by enlargement of the spleen arising absolutely independently of cirrhotic changes in the liver and when combined with the second ary anemia so constantly to be observed in the syphilitic it fulfills the essential requirements of the first or preascitic stage of Banti's disease as originally postulated.

(b) In other cases of late acquired syphilis splenomegaly and cirrhosis of the liver are combined in which event jaundice, subcutaneous and submucous varices, ascites, digestive disturbances dependent upon chronic passive congestion of the gastro intestinal mucous membrane, hæmatemesi and related changes constitute an exact clinical counterpart of the picture given by Banti for the intermediary and final stages of the disease described by him.

(c) The syphilitic cirrhosis of the liver just referred to is of two varieties, one corresponding to the atrophic or hob nail liver of Laennec in which syphilis is an etiological factor in at least one third of all cases the other the coarsely lobulated liver in which syphilis is universally recognized as the specific cause.

(d) In 4880 autopsies at Bellevue Hospital cirrhosis of the liver occurred 14 times in 314 luetic subjects or in 23.4 per cent and of this number there was an associated splenomegaly of marked proportions in 48 or 64.8 per cent. Of the 14 cases 50 were of the coarsely lobulated type and 24 of the atrophic or hob nail variety.

2. The histological changes in the spleen in the condition described by Banti are identical with those due to syphilis. The lesion is a chronic diffuse interstitial splenitis attended in certain instances by sclerosis of the malpighian follicles. Banti and his followers attach great significance to the latter finding. As a matter of fact sclerosis of the malpighian follicles is characteristic only of recessive status lymphaticus in which it occurs with almost unvarying regularity and in the spleen of the so called Banti's disease it is but a coincident histological change.

K. L. VINE

**Fottner G. R. and Archibald R. G. A Case of Splenomegaly Treated by Splenectomy with Report on Condition of the Blood and Spleen.** *Lancet Lond* 1918 c cl or

In a girl of fourteen splenomegaly associated with hepatic enlargement and leucopenia and intermittent fever was treated by splenectomy. No cause for the splenomegaly was found. Six months after the operation the patient had gained in weight and strength and the leucopenia was less marked.

The author considers this a case of splenic anemia allied to Banti's disease.

I. ISTER TUROLSKE

## SURGERY OF THE EXTREMITIES

DISEASES OF THE BONES JOINTS MUSCLES  
TENDONS CONDITIONS COMMONLY  
FOUND IN THE EXTREMITIES

Kr che P II Hypertroph i V il us Syno it s  
of th knee j int S g Cl Cl g a  
9

This condit n is frequently m taken for tuber-  
culosis and treated as such. The condit n re ult  
from an infecti e pr ces els he e in the body.  
It begins as an a ute vno iti hch be ome  
chronic v th r thout enla gement of th j nt.  
A late p ctur of the disea e h ma ked e  
largement of the jo nt th large m es p t udi s  
from e ther side f the p tell and the ju d i p  
ten lon and a rather le s p om ne t p t ill.

Pathol gic changes in the e case the  
gro wth of the sy o il m mbrane and y o il  
fringe. This r ult from irr tat on of the in adi-  
organism and the repeated traumatism wh n the  
lmb is in a ti e ue. On pen ng the jo nt mas e  
of hypertrophic ill us tissu a seen pa tial  
de tr ction f the ca tula ge c ucal ligam nts n i  
ynovial membr ne may b obse ed b t n l  
tru tion f bone.

The sympt n are le severe th n one oul  
expe t. Frequently only a dull pain is p sent  
a feeling of st fne in the j nt. Sh p pai m y  
be e perienced afte lon continued t auat at.

In diagnosis th condit n mu t be differentiated  
from ch onic synovitis heum toid arthrits.  
Cha cot jo nt tuberculo and arc ma. The  
cardinal gns a e gradual enlargement of the jo nt  
absence of the se ere pain wh h ne vould expect  
in uch an e larged jo nt ov l boggy ma e at  
each side of the patell absen e of patellar ball tte  
ment no fluid on a p ati n. The X ray shov s no  
de t uction of b ne.

T e tment h uld pr oide embol of the p imary  
fo u f infection if po s ble abs lute est of the  
lmb by Buck ext nsi n autogeno accine f rm  
aln and glyc in inj tio into the knee j nt.  
In an ad anced t e the only co e complete  
syno ial capsulectomy. K eu her po s is three  
such cases with operati n. I E Br n w

Moynihan B W unds of tl kn e J int B t  
W S J 9 7 1 7 7

There is no depa tment of urge y n i ch greater  
changes have ccu red than in that conc n d with  
th t reatment of ound f the knee jo nt. For  
ac demic purp e the foll ing cla es of jury  
v ll be reco n d.

Case of clea pe fo ati g und of the k ee  
jo nt by a r fte bulent. They are r pidly s aled and  
present no iden of nflammat ry react on.

2 Cases of penet ng pe forati g wo nd f  
the j nt th a larg apertu of nt y or of ext  
o both hen the project le pa t fit i retain d in

the jo nt. All su h ca es must be operated upon and  
an X ay e am nat on is indispensable.

3 C e of pe forat ng or penetrating wounds  
of the j nt v th intra articular fracture. This  
lition a degree more eous than that in  
h h th m sile has become embedded in the  
end oi tie t bta o femur and mu t be dealt ith  
by l quat e posu e and radical removal of all  
dead e ely d maged ti sue.

4 C a e of inju y to the knee jo nt ith exten-  
sive i ture of the a ti ular e ds.

In ill ca e the lmb should be m mobilized upon  
a fl t at the earl e t possible moment and kept so  
until a complete ope tio can be pe formed. The  
ti l fe ture in all operat on are the exc on  
f the nd anl the t ack of the projectile after  
pr l m nary t il it n by cautery or other i e.

If c exp u of the jo nt either by enl rg ng  
t ing nc ion or by long internal or e ternal  
nc o by the forn ation of a flap by di ion  
of the ptellar ligament. It s v ry imp tant that  
ll re g bod es be removed.

The ou l are l sed in layers by catgut  
utu e nd l a nge i secured by lea ing a gap  
n th l e i sutu e f the syno ial membrane or by  
le n a tube lo do n to but not i to the jo nt.  
In se c taphyloccus or e pecially streptococcus  
f t n f the jo nt the wounds must be e  
op i l a d the syno ial membr ne stitched to the  
sk n f e i n rage of the jo nt eured and some  
meth l f p oge ss e st rilizati on adopted. E

o m y be n cessary n th type of case. It  
ould b mmed ately d ne in ca e of severe com-  
m nution of the articula en l with much los of  
substance.

If the inf cti n is eve e in an extensive wound  
the m thod of re ction ith de temp rry sepa-  
ration f the ends of the bone sh uld be done.  
Amputation i de tainable in case of exte sive  
dam ge e pecially with much infection.

GATE OOD

No 6 Joss rand G Orthopedi and Functional  
Re ults of C nservati Operati ns in War  
Wounds of th kn (P e l t th p d e t  
f t l d op t r t r s d g no  
h g d g e) Rev d thop P 9 8  
5

The author ope ated upon 107 knee wounds  
thes included 61 ion of the patella 31 rthrot-  
omies and 50 ect ons.

Am g the p tell le ons 2 e included th se  
case in v hich the w und had att cked the a tenor  
face f the kn e in wh ch the principal su g cal  
intervention was r moval of the patella. I the 26  
cases the e lts h 5 c es of complete ankylosis  
acce tuat d stiffness of the knee th poo move-  
ment i 9 cases p ese ati n of c mplete or v ry  
extensi e mo ements in 12.

In the 31 arthrotomies which were done for deeper lesions or when they extended to all the cavities of the knee joint results showed complete ankylosis in 12 cases incomplete ankylosis in 13 cases preservation of movements above ten degrees in 6 cases. The author does not find that early intervention gives absolute assurance against ankylosis it depends rather on the extent of infection at the time of operation.

In 50 resections the results were complete ankylosis in 7 cases incomplete ankylosis in 15 cases poor articulation in 8. In the great majority of cases of ankylosis the shortening has been moderate and permitted easy correction.

Certain cases which the author reports in detail show that no consolidation appears due to the interposition of a thick layer of fibrous tissue between the bone surface. It is probable that the development of tissue in this part is due to defective coaptation. After resection the weight of the lower part of the limb has a natural tendency to separate the articular surfaces from each other and the suture made in the friable spongy tissue cannot always prevent this. Hence the author suggests maintaining the limb in a vertical position so that its weight would favor coaptation.

In summing up his results the author says that it is a generally accepted idea that the recovery of a movable and easily functioning joint consecutive to knee wounds is exceptional. In the great majority of cases however the amount of mobility preserved is rather a disadvantage because it diminishes the solidity of the limb and interferes with walking without being sufficient to obviate the functional and social inconvenience of stiff knee. Consequently the return of mobility should not be considered desirable when the lesion is not very severe. In many cases ankylosis is preferable and the more complete it is the better is the function.

When mobility of the knee is especially necessary it can be effected by a special operation which offers a better chance of success if done late when the traumatized area is less liable to infection.

W. A. BRENNAN

#### Eisendrath D. N. Gunshot Wounds of the Femur *Srg Clin Chic go 19 7 1 3 9*

Eisendrath reports two cases of gunshot wound of the femur.

The first case was a compound comminuted fracture of the lower end of the femur involving the knee joint. A lower fragment was wedged between two upper fragments. Following the experience of others in European military hospitals this case was treated conservatively by immobilization and extension in a Groves wire cradle leg splint with twenty pounds extension. Fifteen hundred units of antitetanic serum were given as a prophylactic measure. The result was good.

The second case was a similar fracture but the patient was in delirium tremens so that treatment

could not be carried out. The result was malunion with overriding and angularity which will necessitate operative correction.

I. L. BRIDGEMAN

#### Taylor R. T. The Maryland Epidemic of Infantile Paralysis in 1916 *Am J Orthop Surg 1917 xv 759*

The report of the State Board of Health of Maryland showed 353 cases of infantile paralysis in 1916. The city of Baltimore had 206 cases. A monthly incidence showed the disease to be prevalent in August, September, October and November. The fatality was 33.8 per cent. Fifty cases were autopsied showing edematous cords and involvement of the lymphatics of the intestine and the adjacent mesentery. The ages of these cases ranged from birth to twenty-five years, the majority being about five years old. There were 289 whites and 64 negroes, 190 males and 159 females.

At the Kerman Hospital 48 cases were admitted with 1 death due to inspiratory failure, a mortality of 2 per cent.

H. W. MEYFRID

#### Bayksen Gangrene of the Limbs *Muenchen med Wktschr 19 7 11 No 9*

Bayksen of the Rostock Clinic relates two cases in which after trauma of the limb vessels gangrene occurred due to vascular occlusion. In both cases the injury was beyond the vessels which were in no way cut. There was no infection. Nevertheless stricture of the vessel occurred as if they had been too long compressed by a hemostatic band.

In the first case a man received a gunshot in the vicinity of the popliteal artery. In a short time the symptoms of dry gangrene appeared. Operation showed the artery occluded by a thrombus about 6 cm above the wound canal. Later some time ago demonstrated that at a distance from an injury caused by a projectile lesions could occur in vessels which were not themselves injured. Lacerations of the intima and media may follow hyperdistension and from this may occur the formation of aneurysms or thromboses. This appears to have been the mechanism in the case of Bayksen.

The mechanism in the second case was quite different. This was an explosion injury with multiple fractures and wounds of the soft parts and numerous hemorrhages into the vascular sheaths. On the third day after injury while the course of the wound was regular the arm became cold and mobility ceased. Operation in this case showed all the vessel preserved in their continuity even where the tissues were not destroyed but they were strictured to about one third of their normal caliber and completely anæmic. No thrombi were found. Microscopic examination of the vessel showed only numerous hemorrhages into the vascular sheath. The author thinks that an abnormal vascular spasm caused the death of the limb and that the angiospastic disturbances were due to the explosion lesions.

Little is known of the action of mechanical shock.

on the state of contraction of the vessels Deutschlander observed a similar angioneurotic gangrene following a trauma the opposite of spontaneous gangrene After an injury of the soft parts of the fingers he saw phalangeal necrosis

W A B A

## FRACTURES AND DISLOCATIONS

Hakes C E B kn N k I t t J S g  
9 8 t

The author holds that due to the anatomical peculiarities and to the protected position the process rarely fractured fracture of the spine implies less than one half per cent of all fractures He reports on the fracture of the thoracic vertebrae the lightest injury completes the covering of the vertebrae and the plate jacket which encloses the neck and supported the head Ninety one of spine fracture from Rhode Island Hospital records report 4 months these statistics per cent died at the hospital

There are 3 neck fractures with per cent mortality 44 of the dorsal process 68 per cent mortality 13 fracture in the lumbar region the mortality 4 per cent Of the quadriceps are complicated to get the olecranon

The case that was operated upon however the results are better than the other and the author's opinion against operating on the clavicle is supported by the statistics

The rays of the great alula in diagnosis especially in the case of the abdominal symptom helping to differentiate from visceral injury

In regard to prognosis nearly all the complete paralysis of motion and sensation below the injury with loss of sphincter control and the covering sensation of motion in the hand the great majority of the fractures of the humerus cured and complete paralysis more than half the injury probably due to concussion

H J A B

Ashurst A P G Bittler Injury of the Shoulder  
t S g 1 h l j 8 l 5

From a careful study of about forty cases of birth injury of the shoulder the author arrives at the following conclusions in regard to the pathogenesis of these conditions First that pain never occurs and may be of much greater importance than any injury of the shoulder joint even if this is present and secondly that posterior subluxation of the humerus is frequently lesion often overlooked and perhaps may be the cause of persistence of paralysis He considers it not improbable that the nerve lesions in the majority of these cases are terminal and not accidental and support this by pointing out that if the muscular motion constantly paralyzed are supplied by the nerves which pass close to the shoulder joint and therefore liable

to injury while the muscles which habitually escape paralysis are supplied by nerves which at no part of their course come in close contact with the shoulder joint or the bones which compose it

As regards treatment the author rejects nerve operation in early infancy His treatment of shoulder injuries here no dislocation is present consequently keeping the hand and arm in front of the body and as soon as the soreness permits the institution of massage and passive motion Where dislocation is present it is advisable to anasthetize the limb at about the age of six months and reduce the dislocation bloodlessly This may be done by placing the body prone upon the table with the affected arm hanging over the side gently rotating the humerus outward by means of the flexed forearm until the latter has been brought

to the coronal plane of the patient's body and then applying downward pressure on the head of the humerus Abduction of the shoulder joint is then secured by laying the flexed elbow and the hollow chest flat on the table and applying intermittent pressure to the posterior part of the shoulder while the elbow is raised by placing folded towel under it This is continued until the elbow lies in the position to the frontal plane of the body The entire upper extremity and chest are then encased in plaster from the axilla to the wrist and the position After a few days the chest is renewed and again allowed to remain in the same position

In patients over four years of age the open method of reduction is preferable An incision is made around the acromion which is then osteotomized and turned forward The insertion of the scapula is divided while an assistant endeavors to rotate the arm outward This makes reduction possible without difficulty The tendo is freed by the spinatus and infraspinatus and the torn acromion is replaced and fixed by sutures in the young or by screws in older patients Skin closure is made with uterine suture cast in place as in the case of the young for a total of three weeks with one change After removal of the dressings active and passive movements are employed The author has employed the operation on five cases with no cure and marked improvement in all

In older patients here no dislocation is present but in the case of contracture it is better to resort to the operation than to employ a prolonged course of passive movement and gymnastic

G A 000

Henderson M S Recurrent Dislocation of the Shoulder  
J M I 9 8 l

Henderson states that dislocations occur more frequently in the shoulder joint than in any other joint in the body and that the ease with which reduction is accomplished is proportionate to the length of time the dislocation has been present If the dislocation is associated with a fracture of the surgical neck of the humerus unless reduction is

accomplished by an open operation a resection of the head of the bone is usually necessary later

Habitual dislocations of the shoulder joint occur in cases in which reduction has been accomplished and the convalescence completed without incident so that there is no cause for anxiety. The habit of easy dislocation is a sequela that cannot be foretold. Definite evidence of the pathologic condition in recurrent dislocation is locking. The limited opportunity for examination of the entire field at the time of operation accounts for much of the difference of opinion. Dislocations are more common in the male than in the female. The disability resulting may be so severe as to prevent the patient from earning a livelihood.

Numerous methods of treatment have been advocated. Henderson recommends the Young operation which consists in making an incision along the anterior fold of the axilla while the arm is held in abduction strongly retracting the pectoralis major and carrying the dissection down to the capsule below the tendon of the subscapularis. An incision is then made into the capsule and three or four mattress sutures of No. 2 chromic catgut doubled are inserted. It will be found that the overlapping of the capsule may be secured readily by rotating the arm. The wound is closed and the arm is held strapped to the side of the body for two weeks and abduction to a right angle is not permitted for six weeks.

Young also recommends a plastic operation. This is accomplished by an incision starting a little farther out on the axillary fold and extending a little farther down upon the humerus over the bicipital groove. The tendon of the pectoralis major is exposed and the lower half severed. The latissimus dorsi on the opposite side of the biceps tendon is exposed and the inferior half divided. The arm is then placed in a plaster of Paris spica and is held at right angles to the body for from ten days to two weeks.

Henderson reports eight cases treated by the above methods in five of which the condition was cured. Two were failures and at present it is too soon after operation to report the result of the other one. He concludes as follows:

1. Recurrent dislocations of the shoulder may be cured by operation capsulorrhaphy being the operation of choice.

Capsulorrhaphy has been found to be sufficient in the majority of cases.

3. Resection of the head of the humerus is not permissible for this condition.

4. Arthrodesis or ankylosis of the head of the bone to the scapula with the arm at a right angle would be an extreme measure but permissible.

G. W. HOCHREIN

Pain A. Dislocation of Both Hips Without Fracture of the Pelvis. *Brit. M. J.* 1918, 1, 16.

A miner aged 41, when in a stooping position was knocked down by the fall of a stone. Examina-

tion showed his left leg flexed adducted and internally rotated and the right leg flexed abducted and externally rotated. Both dislocations were easily reduced under anesthesia. Usually the dislocation is not the same on both sides.

V. C. HUNT

Grégoire R. Open Gunshot Fractures of the Patella (Les fractures ouvertes de la rotule par projectiles de guerre). *Bull. et mém. Soc. de chir. d'Par.* 1917, 2, 199.

Grégoire quotes the opinions of several distinguished surgeons to show that patellectomy is the rational and necessary treatment of total gunshot patellar fractures. He reports a number of cases to show that patellectomy is not necessary in order to obtain recovery of such a fracture wound.

Grégoire does not think that large opening up of the joint is useful. There are spots which the surgeon cannot reach and furthermore the knee is able to defend itself if it is aided in freeing itself of the septic fluid removing the tract where the infecting organisms are disposed and the projectile which has introduced them.

If it is necessary in the case of the knee joint to expose all the surface before suture mustuture of the shoulder, wrist, etc., be discarded because it is impossible to explore their entire contour.

The essential point in knee joint injuries is the drainage of the effusion in the joint. Grégoire confines himself to puncture with a bistoury, introducing it deeply into the joint about 1 cm. behind the patella at the middle point of its internal face. New punctures are made as demanded until the fluid withdrawn is sterile. The details of nine cases so treated are reported.

W. A. BRENNAN

Besley F. A. Value of the Caliper in Obtaining Extension in Compound Fractures of the Femur. *J. Am. M. Ass.* 1918, 1, 8.

After stating that the majority of method of treatment of fractures of the femur are unsatisfactory, Besley says that one faces the problem in war surgery first of dealing with the large open wound and second the reduction and retention of the fractured bone. The first is the most essential if the patient can be conveyed rapidly to a place where his wound can be adequately treated. The excision of the soft parts should include the skin, superficial fat, fascia, muscles and the loosened fragments of bone. Following this the wound should either be entirely closed immediately or within forty-eight hours with sutures left loose at the time of operation.

Experience teaches that one is frequently successful in obtaining primary union but is then confronted with the problem of overcoming the pull of the strong thigh muscles. Besley has seen a large number of compound fractures of the femur which have nearly all been dressed at the front and placed in a Thomas splint and traction applied with adhesive plaster and maintained with a rubber band.



attached to the bottom of the splint. The Thomas splint a it ha be n modif e l f om time to time ha become one of the mo t ualuable l juncnts in the treatment of fractu th hich the author has come in contact. It g e m re comfort n t an p rtation a l fte tre t ent than any other metho l f i xation.

In hi e ly r th re many se iou d a ter from e l r y hemo h g and extending section the ch f l i s t u l t y being n ma tain n t act n n t l e d i t a l fragment o i ng to the fact th t the l h s i v e p l t u l d become det c l e d n l e c o t the k n A s t r a l of many d f f r n t method the S t e n m a n n l t s i n a s begu n l a v e y a t f a c t o r y a l p a m l e out of t k e

N e l y e y p a t e t m g to the auth r b a h p t l h a b e e i p t e l p t h f o e b l v l l y b g r e m e d a n l the w u d e x i d d l f t o n t h a t h o s p i t l d e a l p c t c l l y v i t l p e n i t e t d ! A d h i c e p l t e i f t h a b n p p l e f e d t h k n e e h v e d a n d t h u i t t h e k t l e d y l e c l e a n e d t h u o l l n d i l u n A i l u t n f t h f n l l r g m a d e o t h p t i c n d y l d t o t h e b o n c u l p t d n l f t s e p u h e d l g h t l y p r d a n d b a c k a d t h e p o t of the l i p e l n g d r i e n t o t h e b e j u t p m l a d p t i t h e m i t p r o m e i p i n t of the c n l y l

H e t t e t h t l e e i a t l y n d a e n p e n g t h e y n a l c of the k j o i n t a t t h p i n t a d s v t h a t t l t t n t d i v t h c l p e i t t h l o n e b u t i f u t h f a n i n h H h i h l b u t n e c a l h t h r e a n y l o p p i n g a l t h o c u r l h e n t h l p s n o t p p l y n t r t e d

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D \ E z n

Lo d J P W l t i s t h e B e s t T e a t m e n t f o F r a t o f t l N e k o f t l F m u S t P l M J 9 3

A c o i l e a b l e u m b e f m e a r e t r e a t i n g c e c o f f r a t u r e f t h k f t h f e m u a s t h e y

e r e t e a t d t h i r t y r f o t y y e a r s a g o I t i a c o m m o n h i t o y u n r h e v e d s u f f e r i n g c o n t n u d w e e k a f t e e k a n d t l e o n l y p r o m i s e t h a t c a n b e h e l d o u t i o l l e d f i r o u s u n i o n i n o d i n a t e s h o r t e n g c o n t i n u e d l a m e n e s s a n d p e r m a n e t c r i p p l n g M a n y of t h e e p a t i e n t d o f e x h a u s t i n a n d s l e e g

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B n v u n n d e t a k e p l a c e n f r a c t u r e of t h e n e k i t h f e m u r i f t i e a l y e d u c e l a n d i f i t i t l y m a n u n e d i n a e d u c e l p o s i t i o n T h e r e h r n f u l r e s u l t s f r o m e m p l o y m e n t of t h W l t n a n t h n q u

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T h u t h r m i j t h e s t a t i c of B n l W t p h l n l T e t z s r g a l t h e n d r e s u l t of f a c t r f t l e c a l c a n e u s H f n d t h t h e r e u l t u f i t e o r k i f r o m t h t 3 p e t o f u c h a s e s M t h o l e l e a l y t m t n t c a n t p e e n t f a e f u n c t l i t u r b n e b u t g o o d t r a t m e n t n e d u c e t h e t o m i n i m u m C l e c f t u m s t t h e f r b e c o n s i d e r e d

as grave. They produce an invalidism which on the average is equal to about 30 per cent of the whole body value.

The following points should be taken into account before making a prognosis:

1. The alterations in the soft parts i.e. atrophy cutaneous and muscular hypertrophy etc.
2. Subastragalar rigidity and ankylosis.
3. Crunching and pain during movements.
4. Alterations in the form of the foot.
5. Muscular contraction.

Radiologic examination is important in the study of recent as well as old fractures.

The author thinks that structural modifications of the trabeculae have only slight importance contrary to the theoretic point of view. He also thinks that arthritic alterations do not give radiographic signs. Some illustrative cases are reported.

W. A. BRENNAN

### SURGERY OF THE BONES JOINTS ETC

Steindler A. Contribution to Volkmann's Contracture. *J. Orthop. Surg.* 1917, 1, 41.

The author briefly reviews the literature noting that the etiologic factor has in most instances been attributed to circular constriction of the parts by plaster of Paris bandages splints etc. producing ischaemia of the muscles i.e. Volkmann's contracture. The lack of pathologic study in many of the reports on the subject, also noted the clinical picture and treatment having been principally discussed. Steindler reports the pathologic changes noted in the operations and photographs of five cases treated in the past year.

Photomicrographs are shown and a comparison of traumatic paralysis, infantile paralysis and Volkmann's ischaemic paralysis made.

The author sums up the histologic changes in Volkmann's contracture as an interstitial myositis and secondary changes of the muscle fiber while in infantile paralysis and peripheral nerve lesions the ensuing changes in muscle seem to be more those of a parenchymatous degeneration and secondary infiltration.

II W. M. VERDING

Duverger J. Reconstruction of the Synovial Tendon Sheaths by Grafts of Internal Saphenous Vein. (Reconstitution des gaines synoviales par les greffes de veine saphène interne). *Presse Méd. Par.* 1918, p. 14.

A study of 80 war injuries involving interruption of the extensor and flexor tendons of the fingers have shown certain peculiarities to the author.

It is observed that nature makes an effort to repair the damage to the tendons by attempting an anatomic bridging of the tendon ends utilizing the cicatrix as an intermediary. If physiologic continuity fails to become established it is because the scar has become adherent on all sides and remains immobile. It is further observed that in a traumatically sectioned tendon the central end does

not usually become retracted but is inserted in the cicatricial block referred to. This differentiates tendon war injuries from those observed in times of peace. Among the 80 cases studied by the author in only three or four did he find retraction of the central stump. It is probable that in the case of war wounds the section of the tendon is not so absolute as is usually effected by cutting instruments in civil practice and the presence of some tendon fibers on the intertendinous cicatrices of war wounds ties them to this.

The author brises his reconstruction technique on these facts. He utilizes the intratendinous cicatrix in reconstructing the tendon and he isolates the reconstructed tendon from the surrounding parts to preserve it from fibrous involvement.

No attempt at repair is made until cicatrization is quite complete. The skin scar is then dissected and the central and peripheral ends of the tendon found. A tongue is then cut from the intratendinous fibrous tissue and with this the tendon is reconstructed in its missing part, the remaining scar tissue being cut away. The tendon stumps are denuded until the synovial sheath is found to be healthy. The reconstructed tendon is then sectioned transversely and a piece of the internal saphenous vein especially removed for the purpose is slipped first up over one end and then down over the other so that it entirely protects the denuded part. The tendon is then sutured where sectioned and the piece of vein fixed by sutures in a manner which is explained and illustrated in the article.

The results of the procedure are very interesting. Almost all of the patients operated upon, number 78, recovered the functions of the organs involved to a greater or less degree when they left the hospital. Only 4 could be traced after a lapse of time and of these 20 had entirely recovered their functions.

The author considers the results very encouraging since without operation these patients would have lost the use of one or more fingers. The physiologic reconstruction of the injured tendon is only possible when it is isolated by means of the venous sheath which replaces the synovial tendon sheath and protects it from incorporation with surrounding fibrous tissue and new adhesions.

W. A. BRENNAN

Swan R. H. J. Primary Excision of Gunshot Wounds of the Elbow Joint. *Brit. M. J.* 1918, 1, 134.

Fagge criticizes the term primary in speaking of an early operation in distinction from a late or secondary operation when healing has occurred and ankylosis has resulted from the sepsis in the joint. The author agrees with him that the word primary should be reserved for those cases which are operated upon in the casualty clearing station in the first few hours after the infliction of the wound.

The author has been impressed with the fact

that if in suitable case, exposure of the elbow joint is performed after thorough removal of the olecranon and infection of the joint and the incisions closed, the result obtained will be much better than if operation is performed when epicondylitis has become established.

The choice of the case suitable for excision depends heavily upon the local conditions. Doubtless the removal of a small attached piece of articular surface is enough in light injury but less than the half articular surface is much commuted and the fracture line does not protrude too far into the shaft of the humerus. The treatment is immediate closure of the joint, gentle rest.

Case could limit easily on active treatment to the removal of the detached fragment of bone and subsequent drainage of the epicondylitis by division of the bone of the olecranon, the subsequent reattachment of the ulna. The author has abandoned this method. The olecranon and the epicondylitis are perceived reflecting the olecranon with the perpendicular of the olecranon, the olecranon is by median posterior incision.

**Dr. W. R. A. Note on Multiple Nerve Test on Duplicating Operation. B. J. M. J. 98, 8.**

If on cutting down upon a nerve a complete anatomical division is found with an end bulb on the proximal end and perhaps an inch more of separation, the need to test the electrical conductivity of the nerve. If the exposed nerve may show a thickened area, then no anatomical division and the question arises as to whether or not there is physiological conduction through this. Here a method of determination would be used.

The electrical rapidity of return of voluntary power and of faradic excitability after injury is not constant. If the exposed nerve is stimulated faradically, the response in the muscle always precedes the return of voluntary power. The author cites a case in evidence of this fact.

The apparatus for making the test of conductivity consists of a faradic coil, metal electrodes, and connecting cord which is sterilized. The only essential of the coil is that it shall yield a sufficiently weak current so weak that it can just be appreciated when both electrodes are placed on the tongue. If the current is strong, the overflow to the muscles other than those being tested causes general contraction and hence accurate behavior is impossible.

The most convenient method of testing the metal probe held in contact with the nerve and at each beat of the metronome the electric circuit is made or broken. The test is made with a long metal probe, the terminal at the end for attaching the connecting wires consists of a platinum wire insulated in a glass handle.

The cord and connections are illustrated by holding. The secondary circuit does not pass to

complete the circuit is attached to any convenient part anywhere in the field of operation.

The nerve isolated by a glass rod passed under it and the metal probe placed in contact with the nerve. The coil is fully withdrawn, one cell actuates the battery, the layer of secondary is used and the metronome is started. A normal nerve will be stimulated by this weak current and the muscles supplied by it will contract with each beat of the metronome. If there is no contraction the current is strengthened by pushing in the core and if further strength is necessary by using two layers any current stronger than this is unnecessary. The test takes only a minute or two. In stimulation of the nerve as the median muscles put into action vary according to the exact part of the circumference of the nerve which is stimulated.

In dealing with incomplete or partial division of a peripheral nerve, it is sometimes necessary to suture a part of the nerve and to leave other fibers intact. An exact estimate of the extent of the paralysis is of all complete lesions are not uncommon in the course of the brachial plexus and are frequent in the scapular.

## ORTHOPEDICS IN GENERAL

**See J. W. The Value of Diagnosis in Back Lesions. B. J. M. J. 97, 1, 857.**

By way of preface the author states that an adequate diagnosis necessarily, both from the standpoint of treatment and from a medicolegal standpoint. The ability of the employer to the employee demands a just consideration of the case.

Practically all cases of back disability as the author points out are due to fall from a height and the resulting injury occurs as a result of excessive pressure applied through the long axis of the spine or while the spine is forcibly flexed.

The author calls attention to the fact that the subject is to be viewed with reference to definition, method of procedure on nature of the accident, diagnosis, prognosis and question of disability.

By a compression fracture he means one in which the vertebra is crushed or flattened, the position of bone involved depending upon the direction of the compression.

Regarding the nature of the fracture he gives abundant evidence that there are as many occur at the level of the first lumbar vertebra as at any other place. This phenomenon he explains by stating that the center of gravity of the body is at this point and that in this area muscular protection alone is insufficient.

Kyphosis may be mild but is not a constant factor. It is valuable as a means of diagnosis but it gives only a thing, namely, deformation of the structure of the vertebral body.

A regard symptomatology cases are not diagnosed because the complaint is stiff and painful. Few have evidence of the symptoms.

as incontinence paralysis etc. Without doubt this is due to the fact that the spinal cord ends above the most frequent point of fracture i.e. the first lumbar vertebra. The usual complaint of the patient is that he cannot bend freely. The greatest loss of motion is noticed when he attempts to bend from side to side.

The treatment advocated is adequate fixation of the spine by means first of a plaster cast and then a brace. Operation the author states is feasible but not enough data have been collected to prove that much benefit has resulted. The twelve cases cited seem to prove that sufficient care is not taken in diagnosis.

In conclusion the author states

1 Compression fractures are common and are due to forced flexion of the spine

2 There is usually no nerve involvement

3 The patient complains of a weak stiff and painful back

4 A good roentgenogram is necessary for diagnosis

5 Disability for heavy work is permanent

6 An individual who complains of soreness or stiffness of the back after a fall should undergo careful examination

JOHN MITCHELL

**Cyriax E. F. The Movements of the Sacro Iliac Joints** *Edinb M J* 917 xiv 370

To determine the question as to whether or not the sacro iliac joints have motion the author submits a series of tests. He feels that sufficient evidence is not found to support the statement by some anatomists that these joints have a rotary and gliding motion. Such motions as they ascribe have resulted from their studies of cadavers and patients under anaesthesia in both of which cases the joints are in a state of relaxation.

The tests submitted have been tried in normal subjects during pregnancy in cases of subluxated ilium in cases of compensatory movements of the joints.

In the following manner the author supports his contention that the joints under normal conditions have no rotary or gliding movements.

With the patient on his back the author placed one hand over one anterior superior spine and the other below the anterior superior spine of the opposite side. By depressing one hand and then the other he attempted to move one ilium downward and the other upward.

With the patient on his side the author grasped the uppermost ilium over the anterior superior spine with one hand and also grasped with the other hand the posterior part of the same ilium and then attempted to rotate the whole bone.

With the patient in the same position and the hands similarly placed the author attempted to move the whole ilium upward and downward.

The conclusions reached are as follows

1 Under normal conditions the sacro iliac joints permit of no actual rotary or gliding movements

2 In early life since the sacro iliac joints are not firmly fixed they may permit of a pathological rotation

3 The presence of actual movements in the sacro iliac joints points to the presence of pathology

JOHN MITCHELL

**Henderson M. S. The Surgical Treatment of Infantile Paralysis** *St Paul M J* 1917 xiv 36

It is the author's desire to consider under this title only standardized operations their possibilities and usefulness. The treatment he states should be so directed that the paralyzed muscles are held in a position of physiologic rest the position most advantageous for the return of power and the prevention of deformity. Lovett has shown that overwork of a partially paralyzed muscle may delay or even completely prevent the return of power. Carefully graduated exercise and massage undoubtedly conserve and increase the residual muscle power.

Primarily the author states it should be realized that the operative measures are palliative and corrective not curative. The location of the lesion in the anterior horn of the spinal cord precludes the possibility of any logical surgical interference during the acute stages. But there comes a time when the patient ceases to improve under the best direction and treatment by means of braces massage and the like. At this stage the operative measures can be well considered.

Neurotization of the paralyzed muscle is attempted by anastomosing a healthy nerve to a paralyzed nerve and by sewing healthy muscle fibers to adjacent paralyzed muscle fibers. These attempts have been clinically unsuccessful. Likewise the use of silk for artificial ligaments has failed.

The large majority of operations performed for infantile paralysis are necessitated by lack of proper attention muscle training massage and the use of braces.

Tendon transplantation has been resorted to. Operations were performed with no regard to mechanical principles and the results were failures. The question of tendon transplantation must be considered with care. The muscle must be of sufficient strength to carry out the new duties imposed upon it by its transference. In the foot for example the author demands before transference of tendons practically normal power in two of the three muscle groups.

Mechanical principles must be adhered to and care taken that the transferred tendon perform the function intended. If the peroneals are paralyzed and the tendo achillis and tibialis anticus normal the foot should first be corrected if any deformity is present and the tibialis tendon transferred to the insertion of the peroneal or inserted into the paralyzed tendon near the insertion. The tendon may be split and a portion left in the normal insertion. The extensor proprius hallucis may be utilized to per-

form the ork of the tib ali anticu The bicep semutendino us may be tran ferred int the patella and thus ncrease the extension powe of the knee whe the quad ic p i weakened In the autho e perience he has found n alue n tr nsfe en e of the p oneal to the nner de f the foot

Whitm s strag lect my nd G llic te hn ju of uing the lving tendon f r stabl er a e e y useful n t eatment of c trun foot deform t e In certain case arth ode is t be prefe d Thi sho ld not b atte pted n pe son b l v the ag of p berty Th so il tatus of the patnt sh uld lete m e the ad ality of a thr de is For ex mple when the d ltoid p alv ed but the capula mu cle are w king an ankylo of the hume us to the scapula at a rght gle give a us ful a m

Th ncl io reached by the uth ar enu m rat d s foll s

Ope ati s for nfa til par lysis demand a con der t on of th so al stat s and the a ful test ng f m cle funct on

Ope at e p ocudure are to be d rtak n ly after it is ce ta n that p er ill not etu n to the paralyzed mu les

3 The use of s k a artificial ligament not advi able

4 Te don t ansfe en e i to be unde taken nly when the mu cle t be transfer ed adapt d t p rform its w d t e

5 A throd s d ma d con de t on f th tent of the par ly and th cil t tus f the patie t J M M H L

N tt J A S me C mm n F ot Cond t on and Tl Ir T at n nt C d M l J 9 7

Ioot c diti n fall omm nly to t o la hr t one wh l the f ot ech n ally at f ult l sec ndly o e h h lu to ome inf ct n The c n mo e t of th e hani l d fects i the i lve ent f the l gitudinal ar h fai e lt

when too much of the bo ly we ght i appled due to the irst etching of the ligaments especially the nse i r cal aneonavicular ligament The pain i ually efe cl lon the nner aspect of the ankle and th e tenlerness over the scaphoid bone Pron t ion f the foot should be looked for a i al lgu pro ation ho e er b ng mo e im p tant

Th recognition of fecti e processe such a gono hocal thrti o tuberculous d sease should not be o e looked and in a badly pronated io t the dag may not be s mple as a tuberculous focus n n the ankle almost always causes a p onated n lit n f the fo t Strapping the foot in an inverted p tting ne lly helps a pro tated foot and la n t much ffect on the pain of rheumatoid or tube ulou l ea e

Th t me t f r gid foot cons ts of fo cibly i tng th f t and hold ng t in that po tition by the f f h iv pla ter o a plaste of P r lin l g Th forc bl n v r ion is pa ful a d in m t a e mu t be done under a gene al anæ thetic t time cons derable fo ce i nece ary Fo t plates dic tel hen spee ly el of fro n pain i indicat e l hen the patient ill not carry out the necessary n t uct n as to e erc se etc in case of painful h el an l i individual who e ght i too much for th f t t be

Plates houl ot as a rule be used in mild cases f r r t ion as str ppi g the foot and ra ing the lo le of the h e i f f e n t As regard r leumat id l e r the \ ry i of the greatest alue e pe lly n the e amination of the teeth It e eals f g tten tumps or absces ca ites under b ridge w k h ch even a good dent t may overlo k

The author of sto a c e here a sho te g of the ten lo r h ill a tl fo cru ner of a dege eration f the p al cord f llo l by exte si e paralys s He al ll tt t n to th fact that th shoul l e n m d and the po sibi lity e pla ned to the pat ent befor ha d J J Ku u r

## SURGERY OF THE SPINAL COLUMN AND CORD

Beckm n F H nd Ad on A W Spin Bifida  
It Op rati T eatment Si P l M J 9  
35

The a thor cla fy p na bith th ega d to t anatoy and op bity Sp bith is t ue he n a The de gnat n of the he n lep nd up n the tru t re found f me ge l n ar fou d n the be n l sac th h n a i nam d a m n gocl if ne e t h s o po t ion of th d a my l m n g cele f a ie l canal the h ia r y ingo m y locele

The sual ite f uch h r a here ifica tion takes place at late p ol f de elopment

r i l l lumbr port on The ause s n t kno n The chor dple us stimulate a etc ss of er bro p n al flu d Ther fore the s c i d e to an ov activity of the horoid plexus nd n t to s cre ti n in th h r n l s c itself

Sp n a bifid l nd itself to pe ative tre tme t but the uth s tate the case must be lected \ e f sp n a b f d i ocated th hydro phalus i to be oper ted upon unless n attempt h t m d t cu e the hyd ocephalus Ma ked mprov m t in hyd ocephalus h bee n ted by i nct of th c p call um The autho s ha e h d n ca e u l c side t n long eno gh t

prove that cure has been effected. Nor can cures be promised in cases of paralysis of the lower extremities. When paralysis is present it is due to the fact that some of the nerves or the entire portion of the spinal cord which should supply the lower extremities and furnish innervation to the pelvis pass out into the spina bifida sac and terminate there. In such cases also the authors have failed to find an instance of complete recovery of the use of the extremities after an operation.

Before operation is advised the patient should be examined to determine the possibility of a hydrocephalus and the absence or amount of paralysis present. A roentgenogram should be required to determine bony defects.

According to the authors the suitable time for operation is from nine months at which time the child can take other nourishment than milk to two years when the increased risk of rupture of the sac is greater. Adults with spina bifida are poor operative risks because the tissue about the hernial sac is infected and macerated.

The following technique of operation is advocated.

The patient is placed upon his abdomen with his head twelve inches lower than the spina bifida sac in order to prevent drainage of the ventricles. The sac is opened longitudinally to expose the opening over the spinal canal and the contents of the sac. A simple meningocele is closed with three rows of chromic catgut. If the spina bifida is a myelomeningocele the nerve fibers are divided close to their exit from the point in the spinal canal and replaced within the canal together with the spinal cord. If the sac contains the cord itself the opening is closed superficially to the cord structures. The first row of sutures is taken in the dura lining the sac, the second row is taken immediately above the first and catches the fascia external to the dura. Before the third row is placed the dura covering the sac is divided so that the cut edges are brought together and the fascial flaps are approximated over the dura. Then the redundant skin is excised and the skin edges approximated with catgut.

After treatment consists in keeping the buttocks higher than the head. There is no need to close the bony defect since no great tension is needed.

The following conclusions are stated:

1. Spina bifida is caused by increased cerebrospinal pressure.
2. At the time of operation cases of spina bifida should be free from infection.
3. The most suitable age is from nine months to two years.
4. Paralysis associated with spina bifida remain unchanged.
5. Spina bifida associated with hydrocephalus should not be operated upon until the hydrocephalus has become stationary or pressure is relieved by some operative procedure.
6. Adults are not good risks because of the frequency of necrosis of the skin flap and meningitis.

JOHN MITCHELL

# **Elsberg C A Fractures of the Spine with Cord and Root Symptoms** *Ann Surg Phila* 1918 lxvii 63

The author states that the indications for operative interference in fractures of the spine with cord and root symptoms depend on the extent of the lesions of the cord.

He states that extreme conservatism is indicated in the patients with the signs and symptoms of a transverse lesion. In cervical and dorsal injuries with transverse cord symptoms an operation should never be performed until distinct and definite signs of returning sensation and reflexes give proof that part of the transverse diameter of the cord is intact.

In crushing injuries of the lumbar vertebrae on the other hand in which the roots of the cauda equina are affected a laminectomy should always be performed as soon as shock has been overcome and after an X-ray picture has been taken. There is considerable experimental and clinical evidence to show that regeneration of divided caudal nerves can occur. Therefore injuries of the cauda equina should be subjected to early operative interference no matter how complete the symptoms.

Elsberg states that patients with evidences of an incomplete cord lesion should be operated upon very soon after injury if the general condition permits unless the signs of interference with functions are so slight that no justification for surgical therapy exists. The part of the cord that has been irreparably damaged cannot be benefited but the compression of a partly crushed cord by bone or blood or by the intramedullary edema which follows every cord injury is certain to cause considerable permanent destruction of nerve fibers. The relief of this pressure or edema by a wide decompressive laminectomy is certain to be of great benefit.

E C Roos

# **Finocchio R The Route of Approach to the Lumbo Iliac Region** (*Las vías de acceso a la región lumbo ilíaca*) *Prensa médica* Buenos Aires 1917 lv 71

The author discusses Kock's posterolateral approach to the lumbar vertebral column which he thinks is only satisfactory when the patient is not very muscular when the costal iliac space is not limited and when the lesions are confined to and situated in the vicinity of the transverse processes.

Mueller's anterior approach is inconvenient on account of the difficulty of drainage.

Finocchio uses a strictly lateral route which gives ample access to the lumbo iliac region and to the lumbar column with an excellent view of all the organs and perfect command of the situation.

The inconvenience of the costo iliac space limitation is overcome by means of exaggerated scoliosis of the trunk which is obtained by bending down the patient on the healthy side with the thorax horizontal and the pelvis and lower limb making an angle of about 130 degrees with it.

The costo iliac space is ideally opened. Either the oblique or the anular incisions usually employed to expose the kidney region can be used but the author prefers the triangular the ascending branch of the uncovers the external part of the sacral lumbar mass so as to permit section of the aponeurosis and abdominal muscles.

An accompanying figure shows the method of exposing the vertebral bodies after partial dissection of the posterior muscle and the lumbar plexus found by penetrating behind the psoas. In order to expose the intervertebral foramina and the lumbar nerve roots to section the posterior transverse ligament is divided by the knife and the nerve roots are exposed on the dorsal side.

The technique goes on to the end of the dorsal lumbar incision. In order to gain access to the lumbar vertebrae to create the incision on the posterior by cutting through the transverse ligament. The fifth lumbar is best approached by the anterior route.

See A and V. L. N. G. Statistical Results on 483 Cases of Scoliosis (R. H. T. H. U. 483, d. 10) Ch. d. g. d. B. 1. 97, 380.

The authors state that because the utilization of the technique had as a principle the clinical philosophy classification of all cases of scoliosis (a) the statistical value of the location of the different clinical forms and of their deviations.

The method followed by Schulthess has been adopted by the author. 83 cases have been adopted by the author. As regards sex, Schulthess found 88 per cent females and 14 per cent males. The author figures as 88 and 8 per cent respectively. In the author case, 10 per cent were thoracic, 10 per cent thoracic, 10 per cent thoracic. Of 6 cases, 53 were left-sided. It is especially more frequent than other forms in males.

As regards the site, the vertex of curvature is more frequently found on the left side between the ninth and twelfth dorsal vertebrae. On the right side the site is more usually in the region of the ninth and tenth.

The general findings of the authors as regards total scoliosis do not differ very greatly from those of Schulthess.

Lumbar scoliosis formed 14.3 per cent of the author's cases. It is more prevalent in females than in males, the proportion of 58 to 1. It reaches its maximum about the fourteenth year. In the form also it is more frequent on the left side in the region of the first and second lumbar vertebrae.

Dorsal scoliosis was found in 12.2 per cent of the author's cases and the proportion as regards age as 55 females for 4 males. Forty-eight cases were found against 11 right-sided. It reaches its maximum from the twelfth to the fourteenth years.

Dorsal scoliosis was found in 12.2 per cent of the author's cases. The sex proportion was 9 female to 1 male.

Of the author's cases, 3 were simple dorsal scoliosis, 6 were males and 17 female. It is generally found in the region of the fifth to the seventh dorsal vertebrae and is about equally distributed on both sides of the column.

Complete dorsal scoliosis is the most numerous. In the author's statistics showed 70 cases or 33 per cent, 30 were females and 31 males. There is a notable preference for the right side, 12 on right and left-sided. The region of choice is that from the fifth to the seventh dorsal vertebrae.

Considering the 790 cases as a whole, 435 were left-sided and 355 right-sided. The right-sided showed a preference for the thoracic vertebrae, the fifth and tenth dorsal vertebrae. The left-sided were mostly located between the first and second lumbar and the third and fourth dorsal vertebrae. W. A. BRE.

## SURGERY OF THE NERVOUS SYSTEM

Klausner, R. R. D. position of the Ulnar Nerve. (U. ch. m. d. H. h. l. 97, L. N. 9.)

Klausner refers to the technical difficulties of bringing the nerve into union by suture at the end of a sectioned nerve. The conditions in the case of the ulnar nerve are very unfavorable and Klausner has adopted for surgical exposure a method of red position of the nerve.

After leaving the interligamentous groove of the biceps on separating from the median ulnar nerve, the bony duct between the olecranon and internal condyle of the humerus. On going to its situation, it is tense when the elbow is joint flexed at right angle. As the nerve does not bend in this third it can

be isolated in the posterior region of the elbow with the aid of gauze incisions and on separating the flexor humeri over the nerve, the dissection is complete.

The nerve is easily lifted up on its proximal part, he elevates the internal bicipital groove. If the flexor carpi ulnaris is incised between the humeri of which the nerve runs, it can be freed for a length of ten to eleven centimeters. Then by flexing the elbow joint at right angle the nerve is arranged over the flexor digitorum profundus of 5 cm. girth, which is ample for practical incision without tenotomy.

Prior to the Klausner method, the procedure

this shifting of the ulnar for a lesion of the epicondyle. There were no inconveniences. He has since practiced it in war hospital. The method is especially applicable to ulnar lesions in the cubital region but in higher or lower lesions redistribution of the nerve will result in diminution of tension.

W. A. BRENNAN

### Jangley, J. N. The Separate Suture of Nerves in Nerve Trunks. *Bull. U. S. A.* 1918: 45

The accuracy of apposition of the central and peripheral end of the several nerve fibers is a factor determining the degree of recovery from the effects of nerve severance. It is improbable that an exact apposition of corresponding bundles can be made even in a freshly cut nerve and if a piece has been excised it is certain that exact apposition never occurs. Microscopic examination shows that after suture of the nerve fibers growing out from the central end of any one bundle usually take a devious course and run to several peripheral bundles. This new arrangement caused by nerve fibers growing out of their course is spoken of as the distortion of the nerve pattern.

The nerve pattern is distorted both on its efferent and afferent side. On the efferent side the central nerve cells which formerly in a limb controlled only a flexor muscle may after regeneration control flexor, extensor, adductor, abductor or rotator muscles in various proportions. On the afferent side cutaneous fibers normally giving rise to the different sensations of cold, heat, touch, etc. will run to the muscle and tendon and muscle and tendon afferent fibers will run to the skin. This necessitates some readjustment of the processes in the central nervous system in order that reflex and voluntary movement may occur in a properly coordinated manner. This takes place quite rapidly in the case of simple movements but the finer movements are only gradually recovered and the sensory adjustment appears to take a still longer time.

In regeneration after nerve suture there is also a varying degree of loss of innervation by a union of afferent and efferent fibers making a functionless connection.

It has been shown that if after nerve regeneration the nerve be cut above the point of union and the central end of the peripheral branch stimulated contraction may be obtained in muscles innervated by other branches. This is due to single fibers of the central end dividing into two or more fibers which pass to different peripheral nerves. Such reflected actions occurring in branching axis cylinders the author has called axon reflexes.

The effect of the division of fibers with divergence of the branches will vary according to the nature of the fibers and the nerve ending if any which they make. Thus when a muscle nerve fiber divides and makes new nerve endings in different muscles a nerve impulse passing down it will cause contraction in both muscles and when an afferent

fiber capable of giving rise to sensation divides and makes new nerve endings in different regions one must suppose that a stimulation of either region will give rise to a sensation referred to both.

From the above facts it may be concluded that any procedure which reduces disturbance of the nerve pattern will make recovery more complete and will shorten the time taken in attaining that degree of recovery which is possible in the circumstances. It is obvious that if each peripheral nerve ran a separate course in the nerve trunk and these were sutured separately the distortion of a nerve pattern would be much diminished however in the larger nerve trunks the bundles exchange nerve fibers and form a plexus which may be spoken of as the internal nerve plexus. It would seem then that in the larger nerve trunks no separation of the nerves for the different muscles and for different cutaneous areas is possible. Some observers however have mapped out the nerve bundles of the trunk of the sciatic into anterior tibial, musculospiral, posterior tibial, gastrocnemius and other nerve bundles and if true there exists the possibility of suturing the nerves separately in the sciatic.

Hashimoto and the author investigated this possibility and found that the only peripheral nerves having more than a short isolated course in the sciatic were those to the hamstring muscles, the nerve to the short head of the biceps, the lateral cutaneous and external sphenous nerves, the nerve to the outer head of the gastrocnemius and that to the inner head of the soleus. All the others soon after joining the sciatic became connected with the internal nerve plexus and are mixed with nerve fibers of varied peripheral distribution. The most accessible nerves are the cutaneous nerves.

The nerves to the inner and outer head of the gastrocnemius after they join the sciatic run an isolated course for about one and a half inches.

Most of the muscle nerves arise close together from the internal nerve plexus and run a variable but short distance in the trunk. In the comparatively rare cases of clean severance and immediate operation it is not outside possibility to distinguish the respective central and peripheral ends of one or more of the muscle nerves and suture them separately.

All isolation of nerves causes some interference with blood supply in the isolated portions which may delay regeneration if the inner dense sheath has to be opened.

V. C. HUNT

### Ingebrigtsen, R. A Case of Autoplastic Nerve Graft. (Un cas de greffe nerveuse autoplastique.) *Lyon chirurg.* 1917: vii, 884

In previous experimental work the author arrived at the conclusion that a loss of substance in a peripheral nerve may be successfully bridged by an autoplastic transplantation. In most cases however the two ends of the nerve can be liberated and joined by direct suture.

Thus the sciatic and ulnar nerves have been



sutured when the two ends were separated from each other by 5 cm. In the radial artery, a suture 8 cm has been bridged in this way. In operations on peripheral nerves the author is obliged to resort to grafts in only a few cases. One of the cases is described.

As I lie as und in th elbo and the jo nt  
 as re cted Fou t m n th late l sh ed  
 ymptom of n u it h ul n c Libera t  
 of the e c ll v el by mpr em nt f a few  
 n on th and c n ll be at ng a mu h sho ter  
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 as the don f ll l by n autog ft utu d  
 into th gap For thre m n th the p t n se m l

ell but pain then re appeared and it was neces  
sary to remo e the upper part of the graft with  
part of the nerve

Histological examination of the removed piece showed that the cicatrization with delay in nerve regeneration is due to considerable alteration in the super or end of the ulnar. The effects are not due to any inflammatory lesion.

The author thinks that the failure of such transplantation ought not to discourage further similar attempts. This case is unfavorable owing to the preceding peritonitis and the existing neuritis.

W. A. FRENCH

## MISCELLANEOUS

CLINICAL ENTITIES TUMORS ULCERS  
ABSCESSSES ETC

Crit. A. C. nce. Of St. M. J. 18 0

Cancer alldeserelays trating n me  
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va ou kind n and ab ut benign growth or  
l crati Th cndit on e kno n pr  
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tl g ll b d l f om g ll stone ncer of the  
uter f om neglected ulcerat on or la e ations  
canc of the b ea t f om neglected e c a ks  
and e rec lly f om lump th t were at frst ben g

The emotional process we conduct on every physical condition signifying taking place in the environment is prearranged and conditioned in the still quiescent

I'm more expectantly aware. When I present it to people for a radical cure. The first signs of cancer are not different from warning of diseases that are not cancerous. This account for the fact that early cancer is so often overlooked.

There is such thing as a hæmorrhage of the menopa e I erv hæm rh ge pathologic and may be c u el by cancer I xamin th patie t first and pre c be fte rd Any pat nt n th m a d charge of bl d oc u r t the menop u may be u pected of m lgn ncy of the ut u a d should be operated upon

Any lump in the breast which begins to enlarge rapidly and to locate itself in the axilla is becoming malignant.

In a patient over thirty years old any persistent indigestion must be regarded with suspicion. In any bleeding of the tumour the presence of cancer should be eliminated first before treating for bleeding haemorrhoid.

In patient over thirty years of age any goter  
growing rapidly and becoming harder in consistency  
should arouse suspicion of malignancy. When that  
goiter has become adherent to the neighboring ti  
sues it is too late for a cure to be accomplished.

In patients of middle age any blood in the urine must be considered as of cancerous origin until proved otherwise. An examination should be made

P. G. SKILLER, JR.

For the Statistical Results of Radiotherapy in Cancer Patients

I ell find car om ta less sens ti e to rad um  
than roomat He h tr ated 60 cases of skin  
nc Fifty t the e v eured 8 improved and  
5 l o t n e it t me t n In 5 c se of l p ca  
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b ck t o and e half years The 6 other are st ll  
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p o em nt

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 the e se er treated by adium fte rgic l  
 re to F ty ca e e considered permanently  
 d 35 a e t mpora ly mproved

Fifty percent of cases of mammary cancer were treated  
did not continue treatment in 44 cases the effect  
survival after operation One case was cured  
and 33 months in 4 cases there was no cure  
In a antigen and adjuvant therapy combined

In 3 a f ce v cil ut ine cancer di con  
ti ued treatment e e ued e e cons de ably  
impr ed The e a no result 13

There e e 30 as of s roma One case d  
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s ga l t prt on 6 f th cases we e ope ble  
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provement. In 8 cases improvement was followed by aggravation or death. Of the 20 treated cases at least four fifths have received substantial benefit.

The author treated 92 cases of benign tumor. Complete disappearance was observed in 37 and progressive improvement in 51 cases.

The author followed the technique of Wickham and Degrais

W. A. BRENNAN

**Yamaguchi K. and Ichikawa K. Experimental Study of the Pathogenesis of Carcinoma**  
*J. Cancer Research* 1918 III 1

Papillomatous new growths which the authors term folliculo-epitheliomata may be produced on the rabbit's ear by the application of coal tar for from thirty to one hundred days. By the repeated application of the coal tar 8 cases of carcinoma in its earliest stage, 16 in an early stage and 1 complete carcinomata were produced. The carcinomatous change was observed between the 55th and the 360th day. The authors found that the repetition or continuation of chronic irritation may cause a precancerous alteration in epithelium previously normal. If the irritant continues its action carcinoma may be the outcome even though no specific agent has been interpolated.

MAX KAHN

**Roffo A. H. Cultivation in Vitro of Spindle Celled Sarcomata** (Cult. in vitro de células de sarcoma fuso celular) *Pres. N. d. a. g. m. Buenos Aires* 1917 IV 251

Roffo's investigations and experiments in the culture of spindle celled sarcomata were complementary to those already made for the purpose of determining if such cells can live apart from the organ in besides increasing or diminishing their vegetative power.

The experiments gave these results:

1 It is possible to cultivate spindle celled sarcomata of rats *in vitro* in the same conditions as cells of normal tissues.

2 These cells gradually acquire their morphologic differentiation until they reach the fusiform type.

The article is illustrated by a large number of microphotographs.

W. A. BRENNAN

**Davis J. S. The Use of the Relaxation Incision in Dealing with Extensive Unstable Scars**  
*J. Am. Med. Ass.* 1911 IX 2085

The treatment of tightly stretched unstable scars which often follow deep burns or extensive loss of tissue from other cause by incisions to release the scar tension is advised and has been practiced with success by the author.

These scars have little resistance to trauma and infection and frequently undergo repeated ulceration. By the use of relaxation incisions with immediate or subsequent skin grafting of the defects large unstable scars can be strongly healed in a

comparatively short time and superficial ulcers healed with great rapidity.

It is preferable but not necessary to have the area entirely healed. Unhealed cases are treated till healthy granulations are present then dressed for twenty four hours with normal salt solution and the surrounding scar and skin cleaned with alcohol and ether. Local or general anesthesia as fits the case may be used.

On the extremities longitudinal incisions are made down to the deep fascia two or three sufficing. The incisions gap from two and one half to three inches and this new raw surface is usually immediately skin grafted by one of the various methods. In cases of long standing with marked subcutaneous atrophy skin grafting should be deferred until the nutrition is restored following the relaxation. If the scar is stretched over a bone as the skull multiple incisions may be necessary and should be made down to periosteum and some under cutting may be necessary.

With the release of scar tension thus obtained in addition to rapid but permanent healing of ulcerations one notes in a few days instead of the thin glossy mottled tissue a thickened resilient area.

K. L. VEHLE

**Rouhier. Treatment of the Untransportable Wounded in a State of Shock** (Note a propos du traitement de grands intransportables en état de choc) *Bull. et m. Soc. de chir. de Par.* 1917 III 169

From his observations Rouhier finds that in abdominal wounds immediate shock is rare and is connected with hemorrhage. Secondary shock is frequent and is generally coincident with manifest infection. Shock therefore as regard the abdomen is not an entity but a symptom like fever, diarrhea or tympanites. It is a primary or early or late secondary complication of wounds. It manifests itself essentially by arterial hypotension.

The etiology of shock is sometimes simple and sometimes complex but however complex the clinical picture may become as the case progresses and no matter what the symptomatology at the beginning may have been the result always gives the same picture.

The most rational method of classifying shock is according to the predominating or to the probable cause. Abdominal cases show that the following kind may be distinguished:

1 Nervous shock rare in abdominal cases frequent in cranial and thoracic and consequently in thoraco-abdominal cases.

Hæmorrhagic shock.

3 Shock due to cold and fatigue.

4 Shock due to infection.

5 Complex shock in which all the elements are joined to a greater or less degree.

However outside this category there is another variety commonly observed in cases with multiple wounds. This variety of shock does not depend

either on the nervous system or on hemorrhage nor is it due especially to cold. It depends on the nature of the wound and on the conditions and crushing of the tissues. Some of the factors noted above no doubt contribute but it can exist without them and it is at once the most terrible of the traumatic complications and for this treatment is inadequate.

The knowledge of how to be distinguished from the hemorrhagic neurosis presents varieties. The syndrome is not immediate and nervous shock nor secondary in epileptic hemorrhage in hemorrhagic shock but the elements of blood. What is its pathogenesis? The author is to accept the thesis that hemorrhagic due to anemia that the true matter is the absorption of albumin! and fatty matter which has been free by the circulation of the gap in the fatty acid absorption. He thinks that it is possible to suppose that substance of this kind present in the circulation causes phenomena of general intoxication and that the urinary system is not turned back into solution.

The various points of pathogenesis are not merely the ethical. There are cases observed in which after amputation the hemorrhage has been a pleurocory from marked hemorrhage. There are the cases of evidence in shock in Rouhier's case at the high after amputation of the middle of the leg. The patient became transformed after the first day, the fat of the case had been supplied. Tuff and others have noted this same thing.

Cases of shock by toxemia may be divided into two classes: those in which a limb is observed that there is no hope of preserving it and in which the conclusion is the immediate amputation. Colfer's case is a case of immediate amputation indicated in the other class of cases the traumatic area cannot be immediately and completely removed and as the aggravation of the general state by surgical intervention is compensated by the complete suppression of the toxic elements the treatment would appear to be the reverse course.

In his advanced condition on the first day Rouhier handled 90 untransportable cases. Ninety died and 600 were charged in good condition. Of the 90 he died 43 were operated upon and 47 were not operated upon. Of the 100 cases treated 9 were operated upon and 9 not operated upon. Of the total 134 cases operated upon 10 were for hemorrhage. There were 8 immediate amputations and 100 amputations. 5 of them double of these 2 recovered. Rouhier directs special attention to the immediate application of the haemostatic bandage either when the wounded man is picked up on the battlefield or at the first aid post. W. A. BREXAN.

Peabody F. W. A. R. port on the Treatment of Myelogenous Leukemia with Radium B. J. W. C. S. J. 917 clxx 873

This study is based on the treatment of 36 cases of myelogenous leukemia treated at the Huntington

Hospital during the last five years. Nineteen of these patients have died the others are being more or less actively followed. An attempt is made to keep them under constant supervision as this is considered an important factor in their care.

One of the most striking results obtained was the general clinical improvement. The spleen underwent a rapid decrease in size the extent varying in different cases. The vasculature marked change in the blood picture the number of white cells in cases which had received no previous similar treatment beginning to fall in from 24 to 72 hours after the radium was applied and continuing to decrease for day or two weeks after discontinuance of the radiation. The differential count also modified myeloid leucopenia less prominent. Patients with a anemia responded well to treatment usually showing a rise in hemoglobin and red cell count. The development of an anemia in a case under observation is a bad omen a serious sign. It may be the result of too much radiation. A remission of the leucocytosis usually occurs after a few weeks when maintenance must be applied. In general the case is a parallel between the leucocyte count and the clinical condition. The white count is the best rule to guide to treatment and attempts should be made to keep it within normal limits.

Regulating technique with one exception where a few applications were made over the long bones. In the case treated over the spleen in the French manner and as described by Ordway. Recent results have seemed to indicate that the administration of one or several large treatments followed by an intermediate at least several weeks until the evidence of remission has ceased is more satisfactory than the use of smaller doses at more frequent intervals. The author is not prepared to say whether the length of life in the cases treated has been prolonged but temporary remissions of the disease were as surely produced and patients relieved to a useful and not only effect. A. O. HIRSH.

Königsberg G. A. P. Pognosti R. tion f. Uri. D. t. / d. II. / h. 97 N. 4.

Königsberg experimented to find a reaction of urine which would show special functional metabolic disturbance but would give an index of the general condition. He found iodine the best agent for this owing to its great activity and its affinity for the many organic products of metabolism.

For pognosti purposes the iodine is combined with a coloring matter triphenylmethane (gentian violet and methyl violet) the use of which with iodine and absolute alcohol constitutes the basis of the gram color reaction. The iodine solution contains pure iodine 1 part iodide of potassium parts distilled water 100 parts.

In a test tube of 25 ccm are mixed 1 ccm of the iodine solution 10 ccm of filtered urine 1 ccm of solution of gentian violet 10 ccm of absolute alcohol. The mixture is well shaken.

With normal urine or in cases with a favorable prognosis the reaction gives a clear violet azure color of the mixture

In pathologic cases with an unfavorable prognosis the color of the mixture is cloudy varying from a reddish violet to a dark carmine according to the gravity of the disease and the degree of deficiency of resistance in the organism

The author says that his method has much wider application and better general prognostic value than the diazo or permanganate etc reactions

W A BRENNAN

Thom B P Syphilis and Malignancy *Am J Syphilis* 1918 11 40

In this article the author desires to call attention to the following facts which he has endeavored to substantiate by typical and convincing examples

(1) Syphilis predisposes to malignant disease (2) The most malignant forms of syphilis and cancer may exist side by side the so called juxtasymphilitic carcinoma or epithelioma (3) In a syphilitic patient developing cancer there is almost certain to be a local outbreak of the luetic disease in close proximity to the malignant growth (4) In an individual with cancer who contracts syphilis the malignant disease is stimulated to increased activity (5) Leucoplakia occurring in syphilites especially if tobacco is used to excess almost invariably causes development of cancer of the mouth or tongue (6) Epithelioma or carcinoma may develop on a gumma the two lesions merging as it were (7) Syphilis may exactly simulate cancer in any location either of the viscera or on the surface of the body

E C ROBITSHEA

Symmers D The Cause of Sudden Death in Status Lymphaticus *Am J Dis Child* 1917 11 463

Sudden death in status lymphaticus may be brought about in at least two different ways The first and most frequent cause is of the nature of an anaphylactic reaction due to sensitization of the body by a specific nucleoprotein formed in the lymph nodes as the result of necrosis of numbers of germinal follicles Before the so called anaphylactic incubation period has expired the tissues are again subjected to the action of the same protein formed in the same type of tissue in response to an apparently trivial injury and in this way the anaphylactic reaction is completed

A second cause of sudden death in status lymphaticus is to be found in the form of spontaneous rupture of a hypoplastic cerebral vessel or rupture following apparently trivial injury the deficiency in the vessel wall being most noticeable in the muscular coat

EDWARD L CORNELL

Arllitt A H and Wells H G The Effect of Alcohol on the Reproductive Tissues *J Exp Med* 1917 25 1 769

That alcohol may produce distinct anatomical changes in the testicles of those who use it in excess

has been observed from time to time by pathologists for many years and yet this fact does not seem to be widely known or generally taken into account in considering the effects of alcoholism In a series of rats given alcohol for varying periods of time to determine the effect of alcohol on the psychology of their offspring the effect of chronic alcoholism was observed Altogether the authors examined 15 male rats thus treated 6 male rats of the second generation derived from them 18 male rats of the third generation and 8 male rats of the fourth generation Approximately the same number of females was also studied From each animal with a few exceptions the following organs were studied lung liver kidney spleen stomach heart and sex glands The animals were all killed while in apparent health with illuminating gas They were all of about the same age six to nine months except in the case of two which were thirteen months old All had been fed and cared for under identical conditions except for the administration of alcohol admixed with the food in quantities of from 0.25 cc to 2.5 cc per day for periods varying from two to ten months The effect of the alcohol on the rats was except for those fed for very long periods to lessen the learning capacity in almost direct proportion to the amount of the dose and duration of the period of administration

The effect on the body weight was also marked Animals receiving 2.5 cc per diem rate either gained weight far more slowly than the normal animals or in some instances actually lost weight though in the growing period As regards the offspring the observed physical effects were in the case of the offspring of rats receiving 0.5 cc a decrease in size and lessened fertility This was accompanied by a marked decrease in learning capacity The offspring of animal receiving 0.25 cc showed no marked physical changes and were as to intelligent behavior generally on a par with if not actually superior to the offspring of normal animals

The microscopic changes in all structures except the sex glands may be summarized briefly Nearly all showed more or less pulmonary infection of the type common in rats consisting in the less advanced stages of a chronic bronchitis with much cellular infiltration and hyperplasia of the bronchial wall Many showed extension of the process to the adjacent alveoli with a frank mucopurulent bronchopneumonia The degree of this change seemed to have little effect on the conditions in the other organs and bore no relation whatever to the changes observed in the sex glands

Only the testicles showed definite changes but here the effects were so marked and so nearly constant that they stand out conspicuously as the result of the alcohol feeding Of the fifteen male rats treated with alcohol the testicles of not more than two or three rats failed to show noteworthy change and only one could be called normal Several different types of changes were observed and one that attracted attention at once was an apparent decrease

in the s e of the seminifero t bule and i se eral instance a distinct d ea in th e of the testis le it ell Measurement ere made of th tubules in the testle f m th ty eve rats twenty five tubule beng me ur d f m ach te tie to e u e adeq at r p s e n t a n d th t h e v e g o di ameter al latel The e m a u r m e t h a d on e that th r e v a d i s t n c t l e e i the ze of the eminat t bule of th t t h d ce el loh l l h u g h a f e r a t t h h g e v a n o t p r e n t

The result may be umnar z l f ll

Admini trat on f al h l n th f d f mal hit r t f t m o m n th i d a l y q u a n t i t i e f o t o m e u l t d a l m t e n t a t y i n the appearan e o t m a r k e d e g n r t i t r t o n i the t u c l e n t h e n g e a f f t l t e p o f p e r m a t g n t n e e r i r t t h r o c c u r n e t h a t f o m t b i f e t r l t y a n d j i t e a p e n u r t a i m a l p l i n p e r m a t v t h l l p b l i g e c o f a l m a l t y a l l i e n y T l p s l l e l t o t h l n o r m a l p r m a t o i t t h p d u t f d f t i f f p n g a l i o i n l i u a l a t h d m a r k i d i f f e n c i n the d g r e f h g p l u e l l e c u l i t f a l o h l The t b u t t t t l l l a r l m e n t i t h t e t c l e c r i t f t l e p t f n t u b u l r d e m a o m p n a t f r t u l u r a t r o p h y The e p m n t l b e t n l a m o n e l t h e n p y i n d n g n h u m r l h l A o t h e t u e a f u d n b e n t a b l y a f f e c t e d b y the a l h l e p e a l l y t b e m k d t h l n f i r r h o r i t y i n h l i a t i t h e l v G R F B B

### SERA VACCINES AND FERMENTS

I t e n W F S r u m C l n g F o l l w n g  
l o t n Shock T l e a p y i l l l l d  
9 6

The autho l e l e e t a t a p e e n t j u t i a b l i t o s l e r t a t the b e n e f i t o f h k t h e r p v l t l p e n d o n a n y a l a t r t o t h r c t i g o r g a n m b u t o n e o f a c t s n h h o t o l y the s e u m n t b o d y l f r m n t c h n g b u t t h l e c y t o t h f e r a n d w e t n g i d t h i c e a s d l y m p h f l h v a p t r l n g t h t h i m p o r t a t e l l a h g s h c h a r e a v e t a g i a b l e M A X K

B l e t t C J n d O S h a n k y A L A M o d i f d W a r m a n T c l n q u B a s d u p o n t R p i d F i x a t o n f C m p l m n P e s n t i n H u m n S t n J L b - C l M d 9 8

A m d i f e d H e c h t G r a d v o h l m e t h o d r e c m m m e d b y the a u t h o r s h o d n o t u g g e s t t h t h m t h o d u p e r s e d e the o r i g n l W s e r m a n t h e n q u e b u t w h o a l t o s e p a a l l d e t e r m n a t o n b y t h s m e t h d a n d b y t h l d W a s s e m a n n t e c h n i q u e The m e t h d s e e m s t o b e a n i m p o v e m e n t o n the C r a l o h l m o d i f i c a t i o n f t h e H e c h t W e i n b e r g p r o c e d r e M A X K A H V

### BLOOD

H t m n F W Pathologic Study of Sple c  
Anæmia l S V l M B l l 9 8 13

The author r e p o t a e r y i n t e s t i n g c a e o f p l e i a n æ m i a h i h e t u n d a g n o s e d f o r a l m t h r e e y e a r d u r i n g t h i s t i m e t h e p a t i e n t w a s p e t e l p o f o c h o l e c y s t i t e t r a l h e n a n d u l e r w e t t e a t m n t f o r t y p h o i d f e r e n d h i c b e s H o m p l a n t v a s w e a k n e s s p a i n s i n t l e t m c h l s o f p p e t i t e a n d d i a r r h e a The t e m p a t u r e o e i n the a f t e r n o o n t o 103 F a t t e The p a t i e n t w a s e m a c i a t e d a n d h c o m p l e x n h d y e l l o w h t i n t L i v e r d u l l e s s e x t e n d e l l m m t h t h i r d i n t e r s p a c e t o 4 c m b e l o w the c a t a l m g n The s p l e e n w a s e a s i l y p a l p a t e d a n d e t e l d m l o the c a t a l m a r g i n d u r i n g i n p u r t y T h e r e w a a m o d e r a t e g a d e o f a n æ m i a l i t i o l o u n t w a s 4 0 0 0 0 0 w h i t e b l o o d c o t 4 0 0 t 4 6 0 T h e r e w a s a r e l a t i e l y m p h o c y t o s i s y e l v t h e d p e r c e n t O n l y r a y e a m a t n t h e a e m a r k a b l e s h a d o v t h r n b y the p l e n

A p l e n t m y a s d n e T e n t y f o u r h o u r s a t t r e d t h p l y m o r p h o n u c l e a r s v e e i n c e d e d f m 4 t 8 p e r c e n t a n d the l y m p h o c y t e s e l f m 3 p e r c e n t t o 11 p e r c e t W h i t e b l o o d u n t a 2 5 0 0

I n p l e e n a s h e t i m e s the n o m a l s i e S e c t u l e d t h k d c a p u l e a n d l a g e b l o o d s p e a l l d i v i m p a r t i v l y t h c k f b r o u t i s u e T h e p t o e o f h y p e p l a s y o f the r e t i c u l u m a t t h p o f the l y m p h o i d e l e m e t

I n l o e h a l f m o n t h a f t e r the o p e r a t i o n the p a t t h a d g n d p o u n d s a l l the s y m p t o m s h d d p p e e d a n d the b l o o d p i c t u r e w a s i m p r o e d T h e i n c e a s i n g e o s n o p h l a o p e r c e n t w i t h c a i t n d l e u c o c y t o s i s w h c a e the u a l b l o o d c h a g e t l l i n g s p l e n e c t m y C A B E

R b n M S G a c h e s D i s c e A l M J  
9 8 8

The a u t h e p t i n f u l l h s e c o n d c a s e o f G a u c h s d e s e n c h i l d t o y e a o f a e t h e d i a g n o b t h n s t n m a d e p e v s t o the p e t I n t h e c n d c a s e s p l e t m y h a d b e n a d d l u t h d n t a s y e t b e e n c a r r e d o u t

The c e i f l y e p r t e d a n d p h y i c a l f i n d i n g s c a r e f l l y n e l S p l e n c p u n c t u r e w a s m a d e the m e r e f h i h s h o e d c h a a c t e r t i c e d t h e a l c e l l The h e t y o f a s t e r f o u r y a r s o l d w h o a l o h a a n e n l g e d l e r n d s p l e n g e

R b n c o n c l e d b y g i n g a c a r e f u l r e v i e w o f the h t n l a s p e c t e t o l o g y p a t h o l o g y s y m p t o m a t o l o g y d o u e o f the d e a s e

E C R o s s e r u

K e l y C G Th T a t m n t o f S c n d r y  
Anæmi In Infant by Bl d Transluon  
1 J D C l l d 9 47

The r e u l t n l l b u t o n e p a t i e n t e r e s a t i f c t y Th p t i t a s t a n s f e d t i c e s a d n

each instance there was improvement as shown by the blood examination but it failed to hold longer than a few weeks. This child made a gain in weight but the general improvement was not satisfactory. The abdomen was greatly distended not unlike Hirschsprung's disease. In the other cases there was no return of the anaemia and subsequent growth and development was all that could be hoped for.

A table shows the weight increase and the blood finding before and after transfusion but it cannot record the marked change in the patients the change from sickly, fretful infants into happy, apparently well infants. The patients were transferred from those with a digestive capacity barely able to maintain existence into those that took on the normal constructive processes of early life.

EDWARD L. CORNELL

### Marris H. F. The Treatment of Thrombosis *Brit. M. J.* 1911, ii, 82

Venous thrombosis as it occurs in typhoid and paratyphoid prolongs convalescence and is followed by swelling of the limb and varicose veins. Marris believes from his experience in seventeen cases that a 0.5 per cent sodium citrate solution quickly arrests the thrombosis of the femoral and iliac veins which is such an unwelcome complication.

In a series of cases treated by giving the sodium citrate by the intravenous route the average number of days from the onset of thrombosis to evacuation was thirty days, while in those in which the solution was given by mouth it was thirty-nine days. In the series of seven cases treated by the intravenous method five were evacuated as walking and two as sitting cases, and in only one was there oedema present on discharge. In the oral series of ten cases only five were evacuated as walking and three sitting cases, while two had to be sent to England as stretcher cases, and in no fewer than five cases there was a considerable amount of oedema present on discharge.

The theory upon which the treatment is based is that the sodium citrate aids in dissolving the coagulation of the blood.

D. N. FISLINDRATH

### Lee R. I. A Simple and Rapid Method for the Selection of Suitable Donors for Transfusion by the Determination of Blood Groups *Brit. M. J.* 1911, ii, 184

The numerous blood transfusions which are being done at the war zone have brought out practical lessons which are applicable in civil practice. Lee points out a safe method for such practice. The blood group of an individual follows the mendelian law. Using the arbitrary classification of four groups it is found that 8 per cent of individuals fall in Group 1, nearly 40 per cent in Group 2, 10 per cent in Group 3, 4 per cent in Group 4.

It is not necessary that the donor and recipient be in the same group. It is important only that the serum of the patient or recipient does not agglutinate or hemolyze the red corpuscles of the

donor. The reason for this is that in the ordinary transfusion one adds from the donor only about one fifth to one twelfth of the total blood volume of the patient. The donor's serum is therefore diluted to prevent its acting in a detrimental way. The patient's blood cells are also shown to be amply protected by his own serum. Consequently any transfusion between groups is permissible and harmless provided the patient's serum does not agglutinate and hemolyze the donor's red corpuscles, although the donor's serum in the test may agglutinate and hemolyze the patient's red corpuscles.

The author submits a table demonstrating the interrelationship of the different blood groups.

	S	M	F	P
C H	+	+	+	+
C H	+	+	+	+
C H	+	+	+	+
C H	+	+	+	+
+	+	+	+	+
+	+	+	+	+

Group 1 can receive blood from any donor because the serum of Group 1 will neither hemolyze nor agglutinate the red cells of any group. On the other hand the cells of Group 1 are agglutinated and hemolyzed by all other serums except that of Group 1, its own group. Fortunately this group is small. A Group 1 patient is therefore known as the universal recipient. In contrast to Group 1 is Group 4, the largest group whose cells are agglutinated and hemolyzed by no group but whose serum will agglutinate and hemolyze the red corpuscles of all other groups. Group 4 is known as the universal donor group since the blood of Group 4 can be transfused with safety into any patient. Furthermore if the patient belongs to Group 4 he can only receive the blood of the same group.

It has been found that persons within the same group vary greatly in the potency of the agglutinating and hemolytic power of their serums. Thus a cross transfusion may result in an immediate fatality in one instance, in complete destruction of the red blood corpuscles, hæmoglobinuria and marked jaundice but not death in another and in only mild symptoms in the third patient. The minimum procedure without elaborate tests consists in the establishment of the fact that the patient's serum does not agglutinate the donor's cells.

A rapid test can be made upon a slide in which the serum of the patient is tested against the red cells of the donor.

Supplies of serums of known groups are kept on hand ready for use. These known persons or test persons can act as a supply to the known serums. The routine method as described by the author practiced at the army base hospital is as follows.

With the serums of Group 3 and 4 a number of donors are tested and their names and groups are posted in the operating room. In the event of adequate time the patient's blood is also grouped in order to select the donors of groups other than 4. However in the case of an emergency no further

tests are necessary. A do or from Group 4 is taken and transfusion on immediately performed. This has been found of great help since patients are brought in who have suffered a great loss of blood and without further delay a transfusion can be accomplished with a Group 4 donor's blood.

M A B

# Ung L J Transfusion and Unmodified Blood Analysis of 165 Cases J Am Med 4 97 1 59

The article presents an analysis of the effects of transfusion on a clinical condition as a comparison between the use of modified and unmodified blood and a summary of the results of transfusions in 165 cases.

Indications for transfusion as stated by the author are (1) hæmorrhage (2) disease of the blood (3) toxæmia (4) infection (5) shock and (6) general debility. Five cases of gastric or duodenal ulcer received blood for hæmorrhage. Hæmorrhage was checked in all but one case. Two cases of typhoid fever with intestinal hæmorrhage were transfused; one case had no further hæmorrhage, the other subsequently died from profuse hæmorrhage. Four cases of postoperative hæmorrhage were transfused with very striking improvement and recovery.

Abnormal mental states due to anæmia vanish when the hæmoglobin and the number of red cells increased. Three deaths at a case of ectopic gestation were so benefited by transfusion that they were successfully operated upon. Transfusion for profuse uterine hæmorrhage are done in three cases all of which recovered. Repeated transfusions were performed on three patients with ulcerative colitis all showed marked clinical improvement and two began to respond to local treatment which had previously been ineffective. Of twenty-three transfusions given to check hæmorrhage accompanying blood diseases eighteen were successful.

The following diseases of the blood were treated by transfusion: secondary anæmia, pernicious anæmia, hæmophilia, purpura hæmorrhagica, leukaemia, bleeding of the newborn, Bant disease, von Jakch's anæmia and Henoch's purpura. The effect of the transfusions in these cases is summarized as follows.

In pernicious anæmia transfusion should be recommended but can be expected to produce remissions only about half of the cases. In hæmophilia it will stop the hæmorrhage but will not affect the course of the disease. In purpura only one-third of the patients recovered in acute leukaemia it is of but temporary benefit in bleeding of the newborn it is a specific and life-saving character.

Transfusions were performed in the following groups of toxæmia: pneumonia, pyogenic infections, coal gas poisoning, morphine poisoning, uræmia, scurvy and toxæmia of pregnancy. Four children

with extreme toxæmia from bronchopneumonia recovered after transfusion. Four cases with extreme toxæmia following pyogenic infection died. One case of coal gas poisoning was transfused when moribund and died. Transfusions for uræmia are unsuccessful. One case of scurvy showed immediate and marked improvement. One case of profound toxæmia of pregnancy recovered.

Of 6 patients transfused for localized pyogenic infections, with intractable suppurative processes, three were greatly improved and went on to recovery. Ten cases of bacteraemia following various conditions all received temporary benefit which was followed by death. The author suggests the use of immune donor in this class of cases.

Three patients were transfused for shock, one traumatic, two postoperative in origin. Two received marked benefit which led to the recovery of the patient.

Six patients with carcinoma considered very poor operative risk were transfused preliminary to operation. Four survived the operations and two died. Debilitating conditions such as interstitial phlegmon, acute parenchymatous nephritis and cirrhosis of the liver were improved by transfusion.

The technique used by the author is that previously described by him and consists in two methods: syringes and an instrument for automatically shunting the blood from the donor to the recipient by means of a stopcock. Ether vapors sprayed upon the blood syringe to prevent clotting and saline constantly introduced through the blood cannula while it is not in use. The author is firm in his conviction that unmodified is superior to citrated blood for purposes of transfusion. The question is still undecided however and he admits that in acute hæmorrhage citrated blood may be equally efficacious.

The conclusions reached by the author based upon 16 transfusions upon 8 patients are as follows.

The most striking results of transfusion are seen in hæmorrhage, diseases of the blood, toxæmia and shock. In pernicious anæmia remissions can be initiated if no remission occurs transfusion should be repeated with a different donor. The results in toxæmia associated with acute infection are encouraging. If employed at the onset of shock the symptoms will be overcome.

Transfusion assists in overcoming intractable suppurative processes and causes a marked increase in the vitality of the patient. It is not successful in the treatment of bacteraemia. It is useful as a preoperative measure to improve the patient's condition. It will prolong the life of patients suffering from debilitating diseases.

The syringe cannula method has proved a simple, efficient and dependable one for giving whole unmodified blood; which, preferable to citrated blood when blood is required, a suitable citrated blood will serve as a substitute to replenish impaired circulation. E Fick

## BLOOD AND LYMPH VESSELS

Sinclair T. Ligation of the Innominate Artery for Traumatic Aneurism of the Carotid. *J Roy Army Med Corps* Lond 91, 111 721

The aneurism in the case reported filled up the space between the clavicle and the upper border of the thyroid cartilage extending across to the line of the common carotid of the left side and overhanging the subclavian on the right. It measured approximately 4 by 4 inches.

The artery was exposed by a rectangular incision in the midline and along the clavicle. On detaching the sternal head and part of the clavicular head of the sternomastoid and partially dividing the sternohyoid and sternothyroid muscles it was found that no space was available between the clavicle and the aneurism. One and one fourth inches of this bone were therefore resected. The inferior thyroid vein and the larger veins were retracted without damage. The innominate artery was found behind the middle of the manubrium on tracing this it became apparent that the common carotid was so incorporated in the aneurism that the placing of a ligature upon it was impracticable and therefore the innominate was tied with a single strand of No. 4 catgut. The placing of a distal ligature was omitted in this instance as the effects were considered dangerous.

The postoperative course was uneventful and the patient was discharged in less than a month. Later examination showed no cerebral deterioration and the mental functions were normal. The aneurism disappeared. Circulation and sensation in the hand were good but there was some feebleness and stiffness in the fingers.

The secondary hæmorrhage, septic complications, embolism and cerebral ischæmic softening which may occur in such cases were not observed in this case. The innominate has been infrequently ligated not only on account of anatomical reasons but also on account of the feared cerebral complications.

W. A. BRENNAN

## POISONS

Dudley D. G. Successful Treatment of Anthrax by Various Methods. *J Am Med Ass* 1918 117 15

In treatment by excision as soon as the diagnosis is made the skin is scrubbed gently with soap and rinsed thoroughly with sterile water. The skin is painted with aqueous 8 per cent phenol solution or stronger and rinsed with alcohol. Next the lesion is painted with collodion to avoid contamination of the incision. Eight per cent phenol is injected into the tissues all around the lesion to wall off the infective process. From three to five syringefuls of solution about 60 ccm. will be sufficient. One fourth of an inch outside this phenolized zone five or six syringefuls of 5 per cent alcohol are injected. These injections are usually made within one and one half inches of the center of the lesion. The line

of incision is painted with 8 per cent phenol and an area from two and one half to three and one half inches in diameter is excised. After the excision the base and edges of the wound are painted with pure phenol and immediately neutralized with absolute alcohol. The surface is cleansed with alcohol and a wet dressing applied. The author has used boric acid 20 per cent alcohol and hypertonic saline solution. Ordinarily this terminates the case.

When excision fails the injection of three or four syringefuls of 8 per cent phenol into the oedematous zone may effect a cure. If not the tissues are incised freely the course of the edema being followed and gauze drains are put in. Phenol is injected into the tissues due regard being paid to its toxicity and an ice bag is applied.

At this time anti-anthrax serum should be used. The author uses the serum furnished by the United States Bureau of Animal Industry, Washington, D. C. The first dose is 35 ccm. injected intravenously followed within from eight to sixteen hours by a second dose given intramuscularly or intravenously. This dose is repeated if necessary. The only case of chills or fever that the author has ever seen in connection with anthrax occurred following this injection.

In conjunction with this treatment salts in full doses should be given, strychnine one thirtieth of a grain every four or five hours. The patient should have plenty of fresh air and should keep quiet. A tracheotomy tube should be kept handy in case the edema reaches the larynx.

Two cases are reported. EDWARD L. CORNELL

Vernoni G. Recurrent Tetanus of War Wounds (Sul tetano recidivante da ferito di guerra). *G osp ed clin* Milano 1917 LVIII 953

The author reports 4 cases of recurrent tetanus in war wounds. The history of the cases shows that the germs of tetanus remaining encapsulated within a wound which is apparently cured are dangerous and may at any moment independently of any new traumatism or secondary surgical intervention recommence to proliferate causing fresh attacks of tetanus.

The cases reported further show that not only massage but even the simple action of solar light or simple muscular exercise which of themselves are quite mild as traumatic factors can in certain circumstances transform an old focus into a new source of infection of the organism.

All 4 cases reported recovered.

W. A. BRENNAN

## EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Fiolle J. and Delmas I. Wide Exposure of the Vascular Trunks in the Buttock Region (La découverte large des troncs vasculaires de la fesse). *Presse méd* Par 1917 p 709

The authors refer to the operative difficulty of exposing the vessels in the buttock region. This





its surface are detected as often as on the tibia. The use of skeletal radiography should be more common and in conjunction with the Wassermann reaction it will give very accurate data as to the presence of syphilis.

DAVID I. BOWEN

### HOSPITAL MEDICOLEGAL AND MEDICAL EDUCATION

Goodwin H. C. The Hospital as Teaching Institution. *11th May 1918*

The author sums up the following advantages of a teaching hospital: first to the patients because of the complete equipment such a plant provides; second to the attending men who must keep to the front or be superseded; third to the internes who are fortunate enough to secure an appointment; fourth to the student body which is allowed the freedom of the hospital; fifth to the training school for nurses which always has before it the examples of well trained men doing careful work; sixth to the surrounding community which as a result has a higher standard of practicing physicians in its midst; seventh to the physicians in the surrounding country who are able to see in consultation the best men in their respective specialties; eighth to science because in the teaching hospital new therapeutic and diagnostic methods can be studied by means of the trained clinicians and laboratory workers; this cannot be done in a non-teaching hospital since the latter has neither the properly qualified staff nor the equipment.

In other words the advantages to the community are so great that all should unite in its common support and no institution of this character ought to be embarrassed for a single moment by lack of funds. The wealthy men of this country and the foundations created by their wealth are realizing that efficiency in hospital work is as necessary as it is in a manufacturing business and that the lowest per capita cost does not always mean the best managed institution. Waste in everything should be discouraged but money spent in teaching and study is potential energy being stored up for future use and is the best kind of preparedness for a community.

The organization of a teaching hospital cannot be loose or haphazard. The board of managers must be keen men interested in the large affairs of life and public spirited enough to devote much of their time to the proper fulfillment of the trust imposed upon them.

The best method of organization is for the university to maintain its own hospital then the control is always certain and the wards will ever be freely open to the teaching force. As this is not always possible the arrangement of interlocking boards or agreements should be made but in such a way as to insure permanency.

The superintendent and the principal of the nurses training school should have been trained under the methods in vogue in teaching hospitals

so that they will readily grasp the point of view and needs of the teaching force whether it be in the way of material to work with or of nurse to supervise special work and departments. This means that the superintendent of such an institution should be a physician who has enjoyed the widest opportunities himself for it cannot be supposed that a man whose training has been along other lines can develop the understanding and sympathy necessary for the proper administration of a hospital in conjunction with a medical school. The administrator who fails to take advantage of every opportunity for conferences with the professors or heads of the different teaching departments will soon find that he is not in touch with the aims and cannot see the whole picture of which each department is a part.

The staff should have a continuous appointment and should be appointed only when holding the same position in the university.

No hospital should attempt to affiliate with a university medical college as a teaching institution whose finances are in a poor condition.

The physical condition of the plant should be so arranged that there are enough wards for each department. Adjacent to the ward should be small clinical laboratories fitted up completely for the routine work and under the supervision of a technician specially trained for this work. In addition to small clinical laboratories there should be the larger laboratories for physiological chemistry, bacteriology, pathology, roentgenology, electrocardiography, etc. as well as the operating rooms to accommodate the different specialists.

The dispensary should be modern and absolutely under the control of the same departments in the medical school. Here also should be laboratories so equipped that certain clinical diagnosis work can be undertaken. If the laboratories are not near at hand students fail to see the relation between physical diagnosis and laboratory work. Here as in the hospital ward the student body of the third year classes should assist in dispensary routine and study the different cases under proper supervision. There should be rooms enough so that they can work either singly or in groups of two in preparing the histories, physical examinations and suggestions for treatment of patients who come to the clinic.

The autopsy room should be well equipped and under the control of the pathologist. This is the place where the mistakes of diagnosis are clearly shown and where the student can see for himself what he has been more or less surmising while following the case in the wards. In no other place can gross pathological conditions be so thoroughly impressed on the student mind.

There should be a library and record room in which are kept the standard books and periodicals and the completed records of cases treated in the institution with desk room enough to encourage the students and internes to use them. The records

should be accessible by carefully kept card indexes. These indexes should be as follows: a name index and a disease index completed after some standard classification and properly cross-indexed for complications, etc. The case record should contain in detail a complete history of the case before admission; physical examination and tests during the hospital stay; either with the data from the hospital laboratory. E. L. C.

Wynne S. W. T. Need of Standardizing the Statistical Methods of Child-Caring Institutions. *Food and Nutrition* 1913, 10, 8.

The adoption of a uniform method of systematic recording and tabulation of the statistics of child-caring institutions is of primary importance and effort should be directed toward this end.

Brilliant system is followed. At the termination by recording the death of each case of illness occurring among the children under charge the institution forward to the Central Bureau of Record Report Certificate giving the important statistical data. In the Division of Statistical Research the information contained in these reports is coded and transferred to what are known as punch cards. From the punch card the desired tabulation is prepared with the aid of a Powers electric recorder and counter.

The advantage of such a system are first minor, second economy, third absolute accuracy, fourth preservation of the original data in such form that it is always readily accessible for the special studies. Reports can be prepared promptly and economically. EDWARD L. C. ELL.

## MILITARY SURGERY

Various methods of treatment of the various types of wounds and fractures of the limbs and joints.

M. G. H. Medical Service in the United States Army. *St. P. M. J.* 1913, 5.

The author evaluates the record of former attempts to provide efficient and sufficient medical care to the troops of the United States and refers to the present plan of medical care in the present army.

Reference is made to the present plan of medical care in the present army. The author evaluates the record of former attempts to provide efficient and sufficient medical care to the troops of the United States and refers to the present plan of medical care in the present army.

H. I. G. Some Accomplishment of Italian Medicine in the War. *J. A. M. A.* 1913, 8.

Italy has a standing army now approximately 4,000,000 men and has 1,000 hospital beds. The equipment for these many beds has been developed practically altogether from Italy herself. The care of the sick and wounded is divided between the Army Medical Service and the Red Cross of Italy. The wounded are relayed back from the firing line to the base in practically the same manner as in the other allied armies.

The Army Medical Service has erected where necessary one-story pavilions 14 feet high, 18 feet wide and of any necessary length built of iron and hollow tile while the Red Cross hospital accommodations are mainly in converted hotels, schools, etc. Hospital care is being located nearer and nearer the front as it is deemed advisable to risk the occasional danger from shells in view of the great advantages of early treatment. Many of the hospitals are now outdoors thirty to forty feet

underground and others on the mountains are built out of solid rock practically on the first firing line.

Specialization has been carried out to a high degree. Large educational institutions have been established. The foundation of huge quarantine stations both back of the front line in northern Italy and also in the south to take care of the men returning from the east marks an important achievement. The stations have accommodation for thousands of men, have large sterilization and disinfecting outfits and maintain efficient laboratories for routine tests for cholera, typhoid and dysentery and blood tests for malaria are made.

The laboratories have done much to keep down the morbidity rate of the above mentioned diseases. About 500 cases of tuberculosis are said to have appeared in the army, the venereal incidence is small. During the period of inactivity in the winter months a medical school has been established in the north of Italy for students released from the trenches. R. B. B. T. M. V.

Lo. W. E. The Application of Military Surgery to Civil Practice. *Ok. St. J. M. d.* 1913, 80.

The genesis of cases in time of war develop a resourcefulness and simplicity of action that copied in civil practice. One of the accomplishments of tremendous importance obtained in practice blood transfusion in the hemorrhage. The experience obtained in the trenches cannot be acquired in years of

The author calls attention to the Thompson splint in fracture of the tibia treated practiced in the war so conspicuously and satisfactorily now is applied. The splint used is a Thompson splint. It can be quickly ad-

clothing and extension applied to the limb so that patients can be transported any distance in comparative comfort. The author recommends the placing of this splint in factories and shops as part of an emergency equipment.

Permanent extension is applied either with red heave plaster or Sinclair glue consisting of glue solid 40 per cent calcium chloride 1 per cent aqueous 50 per cent this glue must be warm when applied.

The ring of the splint must get its support from the tuberosity of the ischium and not press tightly against the perineum. Sufficient support must also be given above and below the seat of fracture. This is provided by perforated zinc cradles or by bandage supports extending in a hammock fashion across the frame. Extension is preferably made from above the knee but if an external wound will not permit the application of such an extension it can be made from below the knee.

For cases in which there is much deformity and overlapping and in which the ordinary extension is not sufficient extension by a rubber band to the frame is very satisfactory. This rubber should be of sufficient elasticity and strong enough to overcome the muscle pull. The continual pull of the rubber band takes up the slack as soon as the muscle has been tired out and holds the fragment in position. It also prevents the spasmodic action which often occurs at night from the muscles pulling the fragments past one another which produces the great pain accompanying such an occurrence.

M A BERNSTEIN

Peat G B. The Effects of Gassing as Seen at a Casualty Clearing Station. *Canad M Ass J* 19 8 1 17

Of 65 cases entering the casualty clearing station two were dead on arrival and three died before any remedial agents could be employed. Of the rest 15 were cases in bad condition 25 severe and 20 fairly mild.

An officer badly gassed was restless almost convulsive. There was marked dyspnoea respiration was 64 the chest was full of moist râles. Pulse was 128 and of good quality. The skin was pale and the finger nails of leaden hue. He was treated with atropine gr 1 75 and morphine gr 1 6 hypodermically and given inhalations of aromatic spirits of ammonia and oxygen inhalations every hour for fifteen minutes. Hydrogen peroxide one half drachm to an ounce of water was administered every hour. Oxygen up to four liters was given subcutaneously in the pectoral region. When improvement set in he was given potassium iodide to loosen secretions. This man was back on duty after two months.

Of the group admitted four died during the night and the following morning. The very grave cases in addition to the treatment already described received camphor in oil caffeine and digitalin gr 1 100 hypodermically. One of this group died.

Nearly all cases complained of tightness in the throat and lungs. There was a cough in 60 per

cent of the cases. Respiration was increased in most cases. Cyanosis was present. Nausea and vomiting occurred in most cases and there was obstinate constipation. The mental symptoms varied from pronounced restlessness to a dazed or sleepy condition.

Indication in treatment are outlined as follows:

- 1 Get oxygen into the system
- 2 Keep the patient quiet
- 3 Relieve the heart and keep it supported
- 4 Relieve the lungs and rid them of secretions and detritus

I E BISIKOW

Reports of the Interallied Surgical Conference for the Study of War Wounds. *J ch de méd et pharm mil* Par 1917 LVIII 105 141 180 400 465

#### LABORATORY METHODS

The Interallied Surgical Conference at its meeting May 14 to 19 1917 heard reports on the scope methods and value of bacteriologic laboratories in connection with war surgery by Leishmann Goverts Renaux and Veillon. The Conference adopted the following conclusions:

1 In every important surgical unit there should be an experienced bacteriologist a doctor having under his direction assistants sufficiently instructed and capable of conducting the various steps in laboratory work.

2 The treatment of war wounds calls for collaboration of the surgeon and the bacteriologist. The latter should be in direct contact with the wounded and he ought to study and discuss with the surgeon the researches necessary and the course to follow.

3 The researches to be made are generally of the bacteriologic cytologic and serologic order.

4 These researches should not be circumscribed to a narrow limit. They should consider (a) the bacteriologic state of the wounds in the initial phase (b) wounds before and after surgical treatment and before and after a removal to a long distance (c) wounds which continue to suppurate or which show any complication (d) sterilization of the wounds in view of suture (e) bacteriologic and biologic control of wounds in order to estimate the degree of effectiveness of the different methods of treatment (f) examination of the blood by culture quantitative and qualitative counts coagulability defensive properties and possible indications for transfusion (g) special infections of joints serosa connective tissue muscles cerebral matter and cerebrospinal fluid (h) general indications for and application of vaccine therapy.

5 In regard to those laboratories now attached to surgical units for the practical work of surgery it is desired that more laboratories should be created for scientific research and for the study of general questions of war surgery or at least that those which already exist should be given over to this end as far as possible.

#### GASEOUS GANGRENE

The Conference took up the consideration of reports by Sacquépée Testi Govaerts Veillon

Maki Derache and Duval and came to the following conclusions regarding the gaseous gangrene of war wound

**Etiology.** There are two sets of causes which favor the development of gas gangrene: one general and the other individual. General causes may be (a) geographical variations, the frequency and clinical type of gaseous gangrene seems partly subordinated to geographical circumstance; (b) the kind of projectile, shrapnel, projectiles or grenade fragment produce the most dangerous wound.

**Regional distribution.** A certain number of peculiarities are almost constantly found in wounds which lead to gas gangrene. The most important are: (1) it is found in the fleshy part of a limb, especially the lower limb; (2) special development of vessels; (3) a narrow orifice; (4) import of the projectile; (5) the presence of foreign bodies; (6) fragment of clothing hanging with them; (7) clots from the soil containing faecal matter; (8) the contusion of tissue with partial necrosis.

**Other factors.** Circumstances, although not constant, are frequent such as large bone or joint ruptures, ham, a consecutive vascular lesions, ligature, hamotoma, catenagade, multiplicity of wound, hamotoma, traumatic black. The clots of gas gangrene are much less effective and complete surgical treatment is necessary, even after a successful operation on the appearance of gangrene, favored by early evacuation of the wound or by general antiseptic treatment, especially after the use of dressings which lead to a bloody attention should not be certain, intoxicating, fighting, namely local or general doses.

**Bacteriology.** Research has confirmed the infection of gas gangrene and the anaerobic nature of the microbe which causes it. Among the microbes met with are the septic vibrios, bacillus bellone (the ecter relation between bacillus bellone and bacillus oedematis is still doubtful), and bacillus pyogenicus. Infection often aggravated by the addition of other microbes especially streptococci.

**Follow the general principle of bacteriology.** In the investigation have been made the various observations sera, the bacteria named microbes, anticipating the use of serotherapy, which has been prepared and their action demonstrated in animal experiments.

**Treatment of gaseous gangrene.** Gaseous gangrene is very frequently the consequence of delay, insufficiency in the surgical treatment of wounds. Prophylactic treatment is the most important. It comprises the rapid evacuation of the wounded to a surgical center where they can receive the necessary care, the stopping of the wound, the evacuation of contused or dead tissue, removal of foreign bodies, cauterization.

In local doses, with or without filtration, the curative treatment consists of (a) completely

exposing the deep tissue to the air; (b) excising all gangrenous or suspected tissue; (c) making longitudinal incision in the zone of infiltration to the limit of the necrosis.

**Amputation.** Indicated in early massive gangrene, especially if complicated with severe edema, a radical amputation also in the rapidly invading forms with a generally disturbed condition, rapid fall of blood pressure. In this case a most valuable method. The method of choice is that named plane amputation. When the amputation is in healthy tissue, Bistouris recommend short skin flap fixed in position. When the amputation is in infiltrated tissue, the initial level of the stump ought to be fixed by means of incisions extending high on the limb, the limb to be trunk.

**Necrosis of oxygen anesthesia.** should be that of high frequency ether should be used. In case of extraction of projectiles or second, or later, operation must be remembered that this may cause a rare, a killing of gaseous gangrene.

# FRACTURES

The paper by Fenton, Nigrosoli, Moynihan, Tuffe, Do Santo, Deache, Veillon and Arbuthnot, is on the fatal wounds of war, ediscussion and the following conclusions adopted.

**Choice of apparatus.** In treating aphyseal fractures, the method of choice

The method of mobilization may include: (1) the primary immobilization at the first aid station; (2) definite mobilization at the surgical center; (3) mobilization during transport.

Primary immobilization should as far as possible approach the definite type and should permit transportation.

Prolonged immobilization should provide for mechanical tension, a cess to the wound and cutaneous participation.

A fracture requires: (a) temporary immobilization at the first aid post. The Thomas splints and cutaneous apparatus give excellent results and the general adaptation in the army is desirable; (b) prolonged mobilization. The above mentioned apparatus splints which permit abduction of the limb are indicated.

**3. Fractures of the forearm.** (a) temporary immobilization at the first aid station. A malleable, graduated apparatus with the elbow at right angle or simple wooden splint is sufficient; (b) prolonged mobilization. The forearm should be mobilized in position and the apparatus should be as far as possible permanent application of mechanical text, and variable degrees of elbow flexion. The Thomas and plaster apparatus, the interrupted multiple plaster apparatus, the Van der Velde splint, the edematous.

**4. Fractures of the thigh.** (a) temporary immobilization at the first aid post. The best apparatus is the Thomas type. It is well to add that the original plaster type is in order to void the heel being projected forward while resting on the

stretcher (b) prolonged immobilization The apparatus selected should permit abduction and flexion of the limb i.e. the Thomas splint the suspension apparatus of the Anglo American type Delbet's or Alquier's apparatus Delbet's apparatus allows very early walking

The multiplicity the situation the extent of the lesions of the lower limb and intolerance for any apparatus authorize the employment of Finochietto's stirrup Addition of a splint of the Thomas type to this stirrup allows transportation of the patient while preserving extension

5 Fractures of the leg require (a) temporary immobilization at the first aid station The Thomas type splint the metallic gutter splint or wooden splints fulfil indications (b) prolonged immobilization The apparatus of choice should permit application of mechanical extension Plaster apparatus combined with metallic extensible splints and movable posterior splints extension apparatus with suspension and the Thomas splint fulfil the indications

It is advantageous to begin walking as soon as possible The best apparatus which permits this is Delbet's If the situation of a wound demands it a metallic bridge splint should be substituted for the plaster splint Finochietto's stirrup either alone or associated with a Thomas splint has the same indications in leg fractures as in thigh fracture

6 Wrist fractures require (a) temporary immobilization at the first aid post A metallic gutter or a wood splint provides sufficient immobilization (b) prolonged immobilization Jones splint is an excellent apparatus

7 Instep fractures require (a) temporary immobilization at the first aid post A metallic gutter splint suffices (b) prolonged immobilization An interrupted plaster apparatus will also serve as a walking apparatus The Jones metallic splint is equally good When transporting the wounded if the apparatus must be removed a plaster apparatus should be substituted

Regarding the surgical treatment of fractures at the first aid station the treatment of fractures comprises (a) dressing of the wound (b) immobilization (c) immediate treatment of complications such as hemorrhage shock etc Immobilization of the limb should be obtained provisionally

At the first surgical center all fractures should be examined submitted to radiology and operated upon if necessary Crushed limbs and gangrenous segments should be amputated as far as possible in the fracture area

Seton bullet wounds with small entry and exit orifices without intermediate swellings and without lesions of the important vessels should be immobilized in a Thomas splint a gutter splint or in plaster The wound should be treated aseptically The patient should be supervised for at least a week and if well characterized local or general symptoms develop the fracture should be operated upon

All other fractures should be operated upon

The wound should be stripped by an incision large enough to permit deep exploration of the whole fracture area with excision of the soft parts and extraction of the foreign bodies

Treatment of the bony lesion should provide careful removal of free bone chips and those which are only held by a very narrow bridge and are thrown into the muscle parts Psection should be free and subperiosteal The irregular jagged bone extremities which menace the blood vessels and nerves are regularized by the bone forceps The lavage fluid is left to the choice of the surgeon Ether and Dakin's fluid are preferred by most

The wounds should afterward be treated by primary or secondary suture At the present time immediate suture of the soft parts is done only exceptionally and in the following cases by the experimenting surgeon during a military lull and with satisfactory facilities in wounds less than eight hours old where the bone and muscle injuries are not extensive even after excision of all contused tissue when resected areas are easily closed up where there is the possibility of supervising the patient until complete recovery The most favorable regions are the face cranium flat bones hand and foot At the first symptoms the sutures should be opened and the wound disinfected

Secondary suture should be preceded by sterilization Carrel's and Morrison's method give good results

Fracture cases should not be evacuated during the period of infection Reduction is obtained by operation and controlled by radiologic examination Certain fractures rebellious to any reduction will be advantageously maintained by osteosynthesis This intervention ought to be practiced as far as possible after sterilization of the fracture area

Uniformity in the treatment of severe fractures in the different units improves the conditions of treatment

Mobilization of joints muscles and tendons of the fractured limb is called for during the whole treatment and ought to commence as early as possible

#### BRAIN WOUNDS

Reports on war wounds of the brain were submitted and the following conclusions were adopted

1 At the first aid post brain wounds are covered with a simple aseptic dressing

2 Men with cranial and cerebral wounds are evacuated according to the apparent severity of their injuries (a) as rapidly as possible in cases of large losses of substance with severe general disturbances (b) if the lesion seems less serious if the general state is not so menacing the patient will be evacuated to a hospital center in which there is a specialist surgeon and neurologist and where he can remain for a long time Operation ought to be early

3 A man with a brain wound ought not to be evacuated before three weeks after trepanation for a craniocerebral injury

4. The cranium should be examined radiologically and possible bone fragments carefully searched for.

It is still a matter for discussion whether the indication for trepanation when a cerebral fracture is not manifest and when the cerebral symptoms exist.

6. Local anesthesia is preferable in the treatment of choice. Astringent is not indicated and it is dimmed by heat and is practically applicable in the majority of operations.

7. Opening up the skull by excision of its edges. Its enlargement is effected according to the indication that depends on the form of the lesions.

8. In case of bone enlargement by the bone forceps is performed by a trepanner by the chisel andallet to the limits of the cerebral contusion.

9. If the diameter is too small be repaired and in a case of the skull be united by trepanation. If it is large the edges will be trimmed and the surface flattened to the level of the cerebral surface.

10. In case of cerebral evulsions all peripheral foreign bodies will be cleared away by a jet of warm physiological saline solution and by projection of the elasticable will be under the strictest precautions.

Very small projectile deeply embedded and not easily accessible more numerous projectiles situated at the base of the cranium or in the sinuses and those which are situated in the hemisphere of the side opposite the lesions should be primarily respected.

11. In bipolar wounds each orifice will be treated on its own account and the deep region of the trajectory should be respected.

No drain nor mesh should be placed in the cerebral substance. The cranio-cerebral bond and be treated by primary sutures or by secondary sutures after sterilization. Reaches are necessary to know which of these two methods best obviates immediate or deferred complication.

12. The patient as soon as he recovers from operative shock will be placed in a horizontal position.

13. Lateral cerebral hernias without deep infection should be treated by enlarging the osseous breach.

14. Thin catenae with large loss of bone substance and those which are raised to cerebral disturbances will be treated by plastic.

15. The secondary complications will be treated according to the region i.e. abscess of the brain, foreign bodies adhering scars by operations appropriate to each of these complications and after consultation between surgeon and neurologist.

#### WOUNDS OF THE NERVES

After discussing reports by Conrad Gosset and Moynihan on wounds of the nerves the Conference adopted the following conclusions

1. In the surgical units at the front it is necessary that the greatest care be exerted in seeking lesions of the peripheral nerves both by clinical examination and by direct examination in the wound at the first intervention.

Whenever a peripheral nerve trunk is found cut off the condition of the wound permits the suture of the nerve should be done and permanent fixation should be made on a special epithelium to accompany the patient.

If the nerve has not been sutured during the primary treatment of the wound or if the lesion has been deep the necessary operation should be done when making secondary reunion of the wound.

4. The operation primary or secondary of the nerve for the functional restoration of the nerve. In any case it puts the nerve trunk in the best position for a late operation if such is necessary.

5. In case of the various functional defects caused by nerve lesions may be the object of different operations undertaken after examination by a neurologist.

6. During the whole treatment special supervision should be given to a good position of the limb to the working of the joints and to the nutrition of the muscles.

Operation on nerve no matter of what kind all for perfect asepsis much minuteness and delicacy of touch in handling the nerve itself.

7. Suture should be done in the nerve tremors reduced as far as possible the healthy tissue the lower end should be normal in aspect and deprived of any fibrous tissue which is an obstacle to regeneration.

9. Contact between the two nerve extremities apparent be necessary for regeneration it seems however that suture at a distance and suture by doublement of the lower end can be employed when nothing else can be done.

10. Attempts up to the present time have not given any special results.

Instead of nerve suture recourse may be had to tendon transplantation (1) when nerve suture is impossible (2) when the function is lost in spite of the operation on the nerve trunk is insufficient. W. A. B. NAW.

M. G. O. S. E. F. D. and Schlesinger E. G. Som. Aspects of the Treatment of Infected War Wounds B. J. S. 984.

The authors very properly call attention to the fallacies that are apt to creep into the conclusions of those who treat war wounds in active campaign since the observations are apt to be confined to the time in the passage of the wounded from the front to a base. In the present war English observers may divide their opportunities to observe war wound and their infection into three stages (1) at the front post (2) at the bases in France and (3) at the base in England. The authors in this instance desire to limit their views to those matters

which relate to the treatment of infected wounds at the base in France

The divergent views which are expressed in the literature from time to time as to the efficacy of similar methods of treatment no doubt sometimes come from an attempt to argue from facts observed in one place to a purely imaginary set of conditions in another

The trial of a wounded man in war are not appreciated save by those who have witnessed his agonies from the front to the base. In the first week he suffers from the initial shock and loss of blood from transport very often rough from the lines through a field ambulance to the casualty clearing station and then to the base. All this time he is apt to suffer from surgical interference and the distress of infection. The first few days after arrival at the base are occupied by sleep.

Fractures arrive in splints adopted to the emergency conditions in war and these have to give way to suitable immobilization of a kind best adapted to hospital treatment. This may or may not necessitate the use of an anæsthetic notwithstanding the fact that one had been employed a very short time before at a casualty clearing station.

The first attempt at treatment at a base hospital is directed toward the nonspread of existing infection. The measures include (1) rest or immobilization by splinting (2) rapid removal of all dead tissue by the use of the hypochlorite solution of Dakin and Daufresne according to the Carrel technique. Carrel tubes are placed in position during the anæsthetic if one is used and intermittent irrigation is at once commenced. As nature's defenses are not yet established it is advisable to do as little surgery in this stage as may be consistent with proper management. If necessary after immobilization pain may be controlled by drugs.

Remember that the resistance of the wounded is usually impaired by a period of great stress and that they are a prey to the more virulent infections.

As to the lines of treatment the authors discourse very interestingly. The present war has brought out the claims of two schools in a great controversy, namely (1) the reactionaries or antiseptic school (2) the progressives or physiological school.

The school of antiseptic methods holds that since sepsis is caused by micro organisms when these are once destroyed the aims of this treatment have been attained and when the wound fails to become clean under the mode of treatment employed there is some detail or principle at fault in the use of the particular substance employed.

The physiological school claims nature as their laboratory. When dealing with an infected wound the method of the latter is to limit as rapidly as possible the depredations of the invading organisms by destroying the food on which they live and at the same time to guard against farther invasion by setting up a strong zone of defence around the wound. The first of these two the destruction of the pabulum on which the microbes feed is accomplished

by liberating trypsin from dead pus. Trypsin so liberated splits up the protein of dead tissue there by forcing the micro organisms to attempt their destructive activities against living or fighting cells.

Further invasion of the injured tissue is hindered by throwing out a band of leucocytes where the injured and sound tissues meet.

Of the two methods the one most likely to find favor is the one which more nearly imitates nature's way.

Rapid removal of all dead tissue is the best method of dealing with infection in war wounds but it must be practiced in the very early stages of treatment. If one waits until infection is actually in progress the method will fail.

The neutral hypochlorite solution of Dakin and Daufresne is of great proteolytic value chiefly due to the fact that it is itself destroyed as soon as it comes in contact with the tissues which on the other hand prevents its irritating effects from interfering with tissue cells. Its action on coagulated protein is very much more powerful than trypsin. The fact of its rapid decomposition in the presence of dead tissue renders the necessity of rapid access of fresh solution very necessary. This object is achieved by the intermittent irrigation method of Carrel.

Nature's method of dealing with an infected wound the establishment of a zone of leucocytes is best aided by absolute rest and a minimum of interference by the surgeon.

Treatment of the wounded part is by absolute rest. This is best done by careful splint and subsequent suspension of the limb from overhead pulleys with accurately balanced counterweights so that any movement of the patient in bed is followed by the splint without disturbance of the injured limb or pain therefrom. Pain in a wound is always or nearly always the result of faulty immobilization unless one excepts pus under tension.

Sinclair's glue is preferred to secure extension. In dealing with fractures and wounds of the lower limb Thomas splint is almost entirely used either straight or bent and suspended in extension on the Hodgen principle the end of the bed being elevated.

The method of immobilization for fractures generally employed is minutely detailed in this important article and those who are engaged in war surgery will find many valuable hints.

In the treatment of the wound itself the following rules are laid down:

1. Destroy as rapidly as possible all dead tissue in a wound by intermittent irrigation through Carrel's tubes with the hypochlorite solution of Dakin and Daufresne. This can only be done by a careful and proper adjustment of the tubes.

2. Tubes for deep wounds are provided with few holes only because pressure of flow is here required while surface wounds do best with tubes liberally perforated because low pressure is here called for.





The elbow joint presents injuries which very much resemble fracture of the long bones rather than injury to epiphyseal ends and therefore the early treatment by washing out and suturing is seldom possible. Incision as in fracture to all parts of the injured area is the essential point in the treatment. When arthrotomy is required for a suppurative arthritis complicating a fracture around the joint, the authors have used a longitudinal incision over the head of the radius in preference to the more usual posterior incision and they then treat the joint in flexion rather than extension. They follow this plan also in cases of elbow injury which may require separate incisions to expose all parts of the joint. They claim that the incision over the head of the radius brings the orbicular ligament under the eye of the surgeon and allows early interference in case of infection before the all important radio-ulnar joint becomes disorganized.

Excision of the elbow is not favored because of the great risk of sepsis with which infection in these cases has commonly been controlled with ample drainage and hypochlorite irrigation.

On the subject of amputation the authors tend toward extreme conservatism in spite of the fact that many limbs shattered by the missiles of war may be saved and remain useless. While they admit also that the attitude of extreme conservatism may have ended in death at times still it often happens that quite sound limbs have been saved which at one stage appeared impossible to save.

Wounds of muscles require careful attention as they are apt to end in massive scar formation. It is just as essential in wound of muscles as in compound fractures and this is especially so where tendon sheaths are open to the spread of infection. By the use of hypochlorite solution sloughing and suppurating muscle wounds are freed of all dead tissue in a few days except where dead tendon tissue is present. This should always be removed by cutting away with scissors. When such wounds are closed early after sterilization avoidance of much disability and many painful and contracted scars is practically certain. When suppuration and a high bacterial count persist beyond the usual time in deep and through and through wounds of the thigh for instance, if no foreign body is present it will often happen that a portion of dead tendon will be found on exploration.

Multiple wounds have shown but little reaction in some cases. They are not severe and the patient exhibits little or no resistance to infection. Pus is not present and there is no evidence of local inflammation. These patients grow steadily worse and die in shock or with symptoms of shock. These cases present a difficult pathological problem to the authors since it is not clear to them why the shock should be so severe in a patient whose total wound area may be considerably less than that of a vigorously reacting single wound case.

Septicæmia and secondary hæmorrhage are the two severe and at times dangerous complications

Septicæmia is prone to occur with insufficient drainage and faulty immobilization especially when subject to stress of transport. For these reasons the complete early closing of wounds when transport impends and when no absolute certainty can be felt that infection is completely mastered should be employed.

Secondary hæmorrhage is nearly always associated with extremely septic wounds. The latter is usually the result of insufficient drainage and for the prevention of both sepsis and hæmorrhage free drainage would seem to be the first important measure to adopt to avoid ugly complications.

The authors express the view that the hypochlorite solution is unimportant as a bactericidal agent and that its undoubted value in the treatment of infected wound depends on its power of destroying dead tissue on which the bacteria subsist. As the dead tissue disappears the organisms diminish in number. The nature of the flora of wounds treated by hypochlorite shows that the coliform and sporing bacilli disappear first then bacillus welchii and that the streptococci are the most persistent.

Concerning experiments with the hypochlorite solution on muscle catgut silk and cotton which were all readily destroyed *in vitro* the authors remark that destruction of suture material which might be disastrous fails to take place in a wound in which hypochlorite is used because the amount of protein in solution present is sufficient to neutralize the hypochlorite as it is introduced.

The plan of bacteriologic control follows the method of Carrel in noting the character of organisms the nature of cells the relative number of mononuclear cells and their preservation phagocytic activity etc. The chart showed a steady downward tendency in the number of organisms so long as dead tissue continued to be evenly eliminated. On the other hand a persistently high bacterial count almost always indicated the presence of a foreign body.

As regards the cell contents of the films at first only polymorphonuclear leucocytes are seen. As sterilization proceeds large lymphocytes and endothelial cells appear as many as 6 to 7 of the polymorphonuclear cells. A large number of mononuclears is sometimes seen when there are still many organisms in the wound but in general the appearance of mononuclear cells is a favorable indication.

The authors pay tribute to Carrel and his co-workers at Compiegne for their valuable technique in the treatment of war wound.

The article is accompanied by an appendix which gives results in 154 gunshot wounds showing the number of days the wound had existed on admission the missile causing the injury the temperature in each case the presence of sepsis and the number of bacteria per microscopic field the number of days required to cause disappearance of dead tissue to obtain sterility the time of treatment and the condition of the case at time of transfer all of which affords interesting data.

# GYNECOLOGY

## UTERUS

F qu do Re ult of Rad um Applicat n n  
Ut in Cance (P l t d l pl t d l  
d m l d l t ) T/ p B l  
9 c s

The autho has ued ad um a e of terine cancer ince February 196 In ca e of operable cancer all eco rel In nope able c s s the e were 3 recover e r mpro ement and 3 st ll in c ure f t eatment In ase of nope able ep theloma of the ce ix and ute ne co pu the tendency s to go e

In ca f c c c after peration the ap pl t n of r d um obt ned a reduct on of c cat cial fung in o e W A B ENYAN

D Onof lo M Clinic land Anatom P tiologi al  
Note on a Rar Ut ine T m (N t l he i  
a t m p l l d n t m t l )  
C d p l l M l 9 m 6

The patient as a primipara of twenty three year in a st te f dystoc a On examination a hard oval ma s qb ut the size of a l mon as felt in the cavity of the l wer pel s On nc s ng th ove ly ng t sues the mas h h va ha d wa detached d et acted The fct s as li and w mmed ately extracted by forceps The mothe recove ed

The ma s e t a ted gh d w th the att ched soft pa s oo g a ms and dry e ghed 550 grams It v as oval in form greyish yellow in color and rough M t roscopic e aminat on afte decalcifica tion showed that it a essenti ly composed of con ective tissue There ere n t aces of cellula elements The tumor was a hard hb oma hich had become calcified It o g nated from the ne k of the ute us as a so called int st t al tumor h h de elops in the thick wall of the uterus as d st nct fr m the ubserous o submucou tumo s which de elop toward the ute ine cavity The s te of the tumor explans its fib ous structure

W A BREN AN

W n F Ute ne Fibroid with Ref erence to Th ir T ndency to Bec m Sarcomatous  
St dy of 100 Cons cut e Cas s Im J  
Ob t N Y 97 l v 888

Warner ba es h pathol g cal tudy f s c ma tou cha ge in ute ine fibr d n the g ound that the o called fibro d l as a rule a leiomyoma fo the tumor develops f om the smooth muscle cells of the organ in which the gr w th is tuated As a result of the product on of quantit of ne ly de el p ng smooth mu cle cell the formation of ne connective t sue i st m late! Th late bv

cont ctio obliterates mo e or less the original cont t uent parts of the smooth muscle celled tum On the other hand rapid growth of the tum r p duce a myoma relatively free from con n t t u It this latter type of growth which the auth r e ds is pecularly apt to become ar m to

Th ex m ination of 10 consecutive specimens of ute i e le mv mata gave the following results

S e pe cent we e of the very cellular type 18 per ce t mode ately cellular 75 p r cent of a c hou character 24 per cent showed hyaline degeneratio in some ca es e ten ive in 3 per cent of the a tere nly 2 j er ce t we e oedematous n o p c nt the a teries ho ed sclerosis though ect on from ma y spec nens v e e not cut so as to h the arte ies wherefore Warner believes that the percentage of arter al degeneratio wo ld ta e ced this figu e T o per cent were com plic ted with sa coma hile 5 per cent were of the very c llular type and apparently well on the border l ne of malignancy One per cent sho ed arcinoma though n many the cervix v as not examined ow nb to su r vag na l hysterectomy Twel e pe cent f the specimens showed rather rich lymphocytic infiltration

The auth r believes that with two of the e tumors defnitely sarcomatou and f ve more well on the road t a oma h iologically mal ant but clinically no malignant seven per cent in all the imp tan e of the early removal of these tumors st ongly uggested CA EX CU R SO

St ge S J Ut rin Myomat J M S Y J  
98

In rev ey ng the pathology of ute ine fibromata Stage emph size the resemblance of the tumors to pregnancy e pe ally i th s true of the submucou ar cty which d tend the whole body of the uterus ymmet ic lly as the growth of the tumor i towa d the ax ty f the ute us unde it mucous coat with a broad or essile b e The s b mucou o sub pe it ne l tumor g w s towa d the perito eal ca ity unde the perit neum nd usually produce an i regul or nodula outl e of the uterus or may become pedunculated

Th inter t t al va ety beg ns i the muscl wall and has a tendency to e tend outwa d or inward pass ng into one of the other va eties

Whn r mo al of a myomatous uteru be ome necessary c mplete hy terect ny is best ho eve f oe t ng condit ons such as ca d c insufficiency nephrit or any other cont a nd ca t ons to a p ol nge l ope ation ar p e ent and the cervix healthy the latter may be left

The author reports a case of a multipara forty four years of age who came to be treated for cardiac and renal trouble with no pelvic symptoms for about two years. She permitted no vaginal examination until a uterine hemorrhage made it imperative. A large symmetrical uterine growth was discovered causing a severe internal hemorrhage as well as pain by pressure on the sacral nerves.

On account of the weakened condition of the patient a supravaginal amputation was done with an uninterrupted convalescence and general improvement.

L. R. GOLDSMITH

**Graefe M. War Amenorrhœa in Germany Due to Denutrition.** *Muenchen med Wchenschr* 1917 lxi No 18

Graefe of Halle reports an increase in amenorrhœa since the beginning of the war in young girls who have reached puberty. Amenorrhœa is not infrequent in cases where the conditions of life are changed at the time of puberty. In the present instance the change is one of diet. The differs from the pre war diet in poverty of flesh and fat. There is also a prolonged physical and intellectual weakening.

Since the beginning of the war Graefe has noticed that amenorrhœa has increased from 15 to 5 per cent of all the cases treated in his gynecological clinic. Other authors report the same.

A circumstance found to accompany the genital symptoms was diminution in volume of the uterus.

The author is of opinion that the cause lying at the bottom of the type of amenorrhœa observed is defective ovarian secretion. He points out the possibility of such amenorrhœa reaching a degree which ends in sterility. This is a serious matter at the present time when it is desired to increase the number of births.

This condition of war amenorrhœa was not noted in previous wars but this fact is not surprising since in no previous known war were all the conditions of life so profoundly modified as in the present one especially the modification in diet qualitative as well as quantitative.

W. A. BRENNAN

**Rongy A. J. Prolapsus Uteri and Its Treatment.** *J Am M Ass* 1917 lxi 1863

The author believes that the factors concerned with the production of prolapsus uteri are (1) the construction of the bony outlet (2) the general muscular development of the patient especially as regards the muscles of the pelvic outlet (3) the size of the child particularly in cases which are overdue.

The first two factors are concerned with prophylaxis in the adolescent in the form of exercise improved personal hygiene and early recognition and management of hypophyseal and epiphyseal dysfunctions. The third factor is absolutely under control in the large majority of cases. No primipara

should be allowed to go overtime on account of the increased size and rigidity of the foetal head.

The ideal method for the correction of pelvic hernia in the form of uterine prolapse is according to Rongy the interposition operation. The most important single step in this procedure is to select the proper point for fixation of the anterior wall of the uterus to the roof of the vagina. If fixed too high pressure symptoms on the neck of the bladder and if too low a sense of bearing down in the vagina results.

Women of the child bearing period upon whom this operation is done should be sterilized lest abortion or dystocia result.

Discussions of this paper by Newton Aranow and Jack are also given.

K. L. VEHLE

**Bessesen A. N. A Simple Operation for Retroversion of the Uterus.** *Am J Surg* 1917 xlii 9

A simplified method of correcting retroversion of the uterus has been tried by the author in a number of cases with entire satisfaction.

His modification of Dudley's method which appeared in the *American Journal of the Medical Sciences* for June 1906 is given in detail.

The operation is done intra abdominally using non absorbent suture material or chromic catgut. An ordinary needle is passed through the left round ligament about half an inch distal to the uterus. From that point a purse string suture is run through the round ligament to the internal ring where the needle takes a bite through the tissues of the ring and a return purse string is run back through the round ligament to the point of starting. The round ligament on the right side is treated in the same manner. When the operator draws taut the suture of one side and his assistant draws taut the suture of the opposite side it is easily determined how much tension will be required to bring the uterus into the corrected or rather over corrected position. The sutures are then tied. If desired a shortening of the uterosacral ligaments can be performed to give added security.

The operation aims at retaining the strongest part of the round ligament to functionate. The thinner outer part is crumpled on itself in such manner that it is made thicker and of equal strength with the uterine end of the round ligament. The uterus is thus held in a normal position and supported by its round ligament in a natural way. There are no loops or holes for the intestines to enter and cause trouble. Should pregnancy occur the uterus is free to move and rise as may be required.

**Kahle R. R. Uterine Rupture Following Anterior Hysterotomy.** *J Am M Ass* 1917 lxi 2170

The patient aged 23 had been well until a miscarriage at three months occurred in December 1915. At that time in order that hemorrhage following foetal expulsion might be arrested the abdomen

va opened the uterus incised and the off n l g placenta removed Operative recovery was prompt

Eighteen month later the patient came to labor at full term Mild lab pain appeared regularly for about forty eight hours The pulse was rapid but of good volume G stri dilatation was evident There were no fetal heart sounds Pro found shock was absent and the patient said that he felt quite ill The uterus and fetus could not be palpated through the abdominal wall

Ale did fact was removed from the patient neuralgically to ectomy was applied for relief and a just physical examination showed no abnormal findings red not venously An unimpaired record of follow up

Examination of the uterus revealed that it had yielded at the old hysterectomy scar

E W I C

#### ADNEXAL AND PERIUTERINE CONDITIONS

Gill N G Unilateral Defect of Tub and Ovary  
A Study in Pathology of the Female Genitalia

The author reports the interesting case of a thirteen year old nullipara who had a laparotomy the total absence of the left tube and ovary and of the left broad ligament was established by dissection The uterus appeared perfectly normal on both sides The right adnexa were normal at the uterine horn The sexual characteristics were otherwise normally developed Clomycosis precluded the absence of an ureteral opening in the left side which suggested absence of the left kidney

The cleid Cell has not discussed the case in congenital and acquired defects and this difference In a congenital primary placental tube and vary the uterus has the characteristic form of the uterus uterine elongated and spindle shaped organ which is toward the side where the adnexa are present On the other hand of the uterus is found normal shape as in the reported aplasia of one tube and vary must be considered a primary defect that is acquired at the natal life The etiology of the adnexal tube

of the dextra or foetal inflammation The few cases thus far recorded in the literature are recorded in none of them is the defect as complete as in Cell horn scar

CA EV CLERRO

#### MISCELLANEOUS

Giffith I W Some of the Common Errors in Gynecology Sill M J 98 4

The author deals with those conditions which are frequently met by the general practitioner He strongly urges physicians to avoid vaginal examination on general women and to become more familiar with the ectal examination

In the primary the tampon is used entirely too frequently and is apparently so used for the contraindicated hemorrhage incident to pregnancy or the puerperium as a means of applying medicines in the menstrual canal and as a test of the probability of an operation for displaced uterus Chromometritis is relatively rare while chronic endocervicitis is quite common

He recommends local measures such as the actual cautery for the eradication of infection in the cervix but cautions its application to the body of the uterus While the diagnosis of ulceration of the cervix is frequently made it is usually incorrect in the frequently an eversion of the cervix so that the observer really sees the normal mucous membrane of the canal This gives an angry appearance to the cervix a cruciate There then a proliferation of cells and the ulcer is said to be cured Soon the cells desquamate the ulcer is said to have healed and the patient is put through the same treatment again Subversion is left alone and the cause of trouble and the patient will be satisfied with a worry and expense

The author emphasizes the fact that in a patient with a tubal pregnancy or discharge is not due to the menopause but premenstrual evidence of cancer until proven otherwise He states that ectropion of the uterus is not an indication for operation and even recommends that when in a routine examination on symptoms of displacement is found the patient should be kept in blissful ignorance of it He urges that the practitioner should get away from the idea that most neoplasms are incurable and cure pains are due to the pelvic organs

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Thoenen T. A New Specific Serum Reaction for the Diagnosis of Pregnancy. *W. J. A. J. d. G. G. S.* 19 No 24

Thoenen of the Obstetrical Clinic of Berne gives a new reaction in pregnancy. For this a preparation is used which consists of a combination of placenta with iron. It is manufactured in Berne and gives a specific reaction with the blood serum during pregnancy. A centigram of the preparation is placed in a sterile test tube. To this is added a centimeter of serum. After three hours the mixture is filtered and washed in distilled water. To the filtrate is added twenty drops of 18 per cent hydrochloric acid and an equal amount of an aqueous solution of 50 per cent ferrocyanide of potassium and shaken up with 2 ccm of ether. A positive reaction gives a decided reddish color, the reaction of control remains uncolored or shows only a tendency toward red.

A first series of trials gave 94 per cent of correct results. In another series the author obtained 98 per cent of correct results. In all controls negative results were obtained. Even in pathologic conditions when the Abderhalden method sometimes gave positive reactions the author by his method claims to have obtained negative results. Thus in the controls with negative results there were 17 cases of adnexal disease and 9 cases of tumor, 7 of them carcinoma. W. A. BRENNAN

Hueneck A. P. Double Recurrent and Bilateral Tubal Pregnancies. An Analysis of 89 Cases Reported in the Literature and 3 Unpublished Personal Cases. *Illinois M. J.* 918 x vii x

The author has collected, studied and analyzed all cases of double and bilateral tubal pregnancies reported with sufficient data in the English, French and German literature from 1908 to 1916 inclusive.

Double tubal pregnancies are almost invariably bilateral, exceptionally unilateral. Double and bilateral tubal pregnancies are either simultaneous or recurrent. They can occur at any period of the child bearing age.

One ectopic pregnancy is not necessarily followed by another ectopic pregnancy. Normal pregnancies may be sandwiched in between two extra uterine gestations. Months or even years may elapse between the incidence of pregnancy in one tube and the lodgment of an impregnated ovum in the opposite tube. In the collected cases the interval between the two tubal gestations varied from three months to nine years.

Double recurrent and bilateral tubal pregnancies occurred in women who had never borne living children.

The cause of tubal pregnancy, whether single, double or recurrent is not definitely known. Inflammatory and other degenerate changes of the tubal wall do not possess the important etiological role formerly attributed to them. It has been believed that the predominant cause of tubal pregnancy is salpingitis postabortum, postpartum or gonorrhoeal in nature, with resulting destruction of the tubal ciliated epithelium.

All the collected and personal cases were primarily either interstitial, isthmic or ampullary. All the others were bilateral. These 9 cases represent 183 tubal gestations. Not one of these pregnancies, either first or second, went to full term. Sixteen gestations were subjected to operative relief previous to tubal abortion or tubal rupture.

Rupture, extratubal, occurs at or near the placental site, taking place either into the peritoneal cavity or between the folds of the broad ligament. Bilateral tubal gestation may terminate in tubal rupture in one tube and in tubal abortion in the other.

Tubal abortion and tubal rupture, be the latter intra or extratubal, are associated with moderate or profuse internal hemorrhage, either in the lumen of the fallopian tube between the folds of the broad ligament or into the peritoneal cavity.

When hemorrhage takes place into the free peritoneal cavity, a practically limitless space the patient may bleed to death without a drop of blood appearing externally.

The treatment of ectopic gestation previous to at time of or after tubal rupture or abortion is operative.

It is not justifiable to sterilize a woman just because she has had a tubal gestation. Remove the unaffected tube.

1. If there be existing in the patient some constitutional state contra indicating pregnancy, such as epilepsy, alcoholism, the worst types of neurasthenia, syphilis, mental disease, imbecility, advanced tuberculosis, advanced cardiac renal or hepatic disease, bad types of primary anemia.

2. If there be existing in the patient some pelvic deformity preventing delivery of a viable fetus through the maternal passages.

3. If it be imbedded in adhesions, if it be malformed or the seat of a congenital anomaly or of inflammatory, neoplastic or other degenerative changes, hydrosalpinx, pyosalpinx, etc.

The mortality of bilateral tubal pregnancy, skillfully operated upon, is very low. It should be



## LABOR AND ITS COMPLICATIONS

Morinelli V. Infarcts of the Placenta. Contribution to their Study (Infartos de placenta con tribucion a su estudio) *Semana med* Buenos Aires 1917 xxv 360

The author reaches the following conclusions

1 Subchorionic infarcts are very frequent. They have been observed in 60 per cent of placentas taken at random.

The author thinks that they are produced by an alteration in the basal chorion, hence they depend on the age of the placenta. This explains their frequency and their harmlessness for foeto-placental development.

3 White nodular infarcts are observed in 15 per cent of placentas. They correspond to alterations of the syncytium following slight endometritis. Unless the number of infarcts is very large they produce no appreciable alteration in the foeto-placental relations.

4 That infarcts have no influence in the production of abortion is evident since they are most frequent in the later months when abortion is less frequent.

5 White infarcts influence the detachment of the placenta by favoring hemorrhage after birth.

6 The more important affections syphilis, tuberculosis, etc. have no direct influence in the production of white infarcts.

7 Clinically white subchorionic infarcts have no importance, but nodular infarcts show the existence of a decidual endometritis. W. A. BRENNAN

Roberts C. H. and Stevens T. G. Twilight Sleep in Childbirth. *Med. Pres. & C.* 1917 cl 41

Roberts and Stevens report on 67 cases of twilight sleep at Queen Charlotte's Hospital. In 90 per cent of the cases the pains were diminished, 46 per cent had complete amnesia, 44.7 per cent had partial amnesia. Analgesia was complete in 32 cases, partial in 31. There were 2 complete failures.

The puerperium in their 67 cases was uneventful. Involution was not retarded. There were 12 forceps cases, every one of which was due to an obstetric complication not dependent upon twilight sleep. The placenta was spontaneously expelled in 63 of the 67 cases. There were postpartum hemorrhages, but one was due to an adherent placenta and the other to a low implanted succenturiate placenta. Fifty-three babies breathed or cried spontaneously. Thirteen babies cried after moderate resuscitation. Three babies died. Two were premature and one died of bronchopneumonia on the sixth day. Of 64 living babies who left the hospital, 49 were breast-fed. Whether twilight sleep affected lactation or not the authors could not say.

Considerable experience is required by the obstetrician as well as the nurse for the successful administration of morphine-scopolamine. Further more, every case of twilight sleep demands the constant attendance of a doctor. H. B. MATTHEWS

Welz W. E. Eutocia Attained by Rational Methods Rather Than by Excessive Narcosis During Labor. *J. Mich. St. M. Soc.* 1917 xvi 501

While fully in sympathy with the use of narcosis to relieve pain incident to uterine contractions, the author believes that recently attention has been focused upon this question to the neglect of equally important features of obstetrical care. Some of the neglected measures because they tend to establish the patient's confidence actually have the effect of making her less sensitive to pain.

The author argues convincingly that conscientious medical supervision during pregnancy not only place the physician in a position to treat his patient most intelligently at the time of labor but imbues her with a degree of faith in the successful issue of her case. And this means greater fortitude for the hour while labor is actually in progress. Acknowledgment of the silent features of parturition has a similar influence. An intelligent view of the reproductive process therefore serves not only to secure the peace of mind of the prospective mother but also to promote the comfort of the parturient woman. Another argument in addition to those commonly advanced in support of conscientious prenatal care is briefly to the effect that an element of mental suggestion attends the medical supervision of pregnancy and this element tends to reduce the suffering of childbirth. J. M. SLEMONS

Harrar J. A. The Causes of Death in Childbirth. Maternal Mortalities in 100,000 Confinements at the New York Lying In Hospital. 1, *J. Obst. & G.* 918 lxviii 38

Harrar's contribution is a brief one confined chiefly to statistics from the record of the New York Lying In Hospital. Since the establishment of the service in 1890, 101,199 confinements both outdoor and indoor have been cared for and it is with the mortalities of these that the paper deals. In the outdoor service are counted 69,081 confinements of which 18 women died. Of these 137 died in their homes and 81 after transfer to wards of the Lying In or other hospitals. The full maternal mortality of the tenement service, 218, represents one death in every 31, women confined or 0.31 per cent mortality. In the last eight years this mortality has fallen from one death in every 312 confinements to one in every 326 confinements.

Of the 23,130 regular indoor applicants confined, 109 died, one in every 21 confinements or 0.47 per cent. This higher mortality is attributed to the greater proportion of primiparae in the indoor service, 48 out of every 100 patients as compared with 20 primiparae out of every 100 labors in the tenement service. The death rate rises tremendously in the emergency cases confined in the hospital, 463 deaths or 5 per cent.

Harrar regards the death rate as low but finds it disconcerting to discover that even in these selected groups the predominating cause of death is



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 outdoor service l l e t prev u el s death  
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 door pat e t o o per th u n l f 030 p  
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 e pectively

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 consi ted in sudden deaths f unknown cau es  
 mo t of them app ently pulm na y embol m but  
 n t e ied by t psy C RE C L ER SOV

### MISCELLANEOUS

De N ma d R I Obst trics B t M s  
 J 981

Th author make a trng plea f r p enat l  
 care f m the earl e t p sible pe o l of pregnancy  
 in ode to fo e t l l the c mpl ations that m y  
 occur Bv ca e f lly amin g n l at l g the  
 preg nt man d gult ng h lfe as to diet  
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 bility an o g m the d infant ll be g tly  
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A thorough phys ical and g nal examinat n  
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 an ca ly abo tion n be done In et o e r on of  
 the ute u s l e e the cerv v h gh up n the p l  
 just at o beh d the symphy and the fund s n  
 complete re e ion incarc t on of the g oving  
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 and a pessary erted t l old the ute u unt l it  
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 the nth month the pat ent i seen once in two  
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 by f m n t ry symptoms a d can be avoided  
 A bl l p essur s of marked s gnificance

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 p t ent l d d ithin an hour after her phys ican  
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 being ell p ep d to cope w th it

The elat e of the fetal head to the inlet is  
 f m r ta e Th can be determined by measure  
 ment and partic l rly palpation The nlet is more  
 omm nly nt act d than the outlet In the  
 major ty of c e there s no di proportion between  
 the head an l pel s but if it is markedly p ese t  
 a c a can section c n be done on an elected date  
 In the borde line e as a test of s x o e h t hours of  
 g od l b r vll ften bring about a normal delivery  
 If a ca ean nece sary the i k of wa ting a few  
 hours w th n aginal ma pulation is rot get  
 While the autho i n t ppo ed to caesa eact a  
 when neccessa y he feel that the present tendency  
 is t o much to ard th procedure in ca es v hch  
 could be treated othe ise

Th ough ut lab atchfulness is essental  
 V g nal e aminat n should be avoided o ly  
 one under th st ictest ant septic p ecaution  
 Rect le m n t n a e of help though they sho ld  
 not be u d in th p ece f hemorrh d The  
 d t n f the ute u vith regard to no m l  
 c nt act n and relaxations should be w tched  
 alo the fetal he t sound Especially i the  
 lang to the chld g eat after the second sta e  
 I o t p tum hemorrhage should be g u r d against  
 by areful att ntion to the separation of the placenta  
 If ther n bleeding it i be t o v ant for norm l  
 sepi t t Adhe ent placenta i v e y rare but  
 hen it ur manu l empty i of the uterus  
 equ ed The phys ician should not le v the  
 patie t until the ute u s ell contracted

The f gur give by the ce sus in 193 sho ed  
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 Compa s n of death r te f om fifteen i regn  
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 ate Sweden No way nd Italy show the lo est  
 r te

The author a ks for the development of a ob

stetric conscience in the physician with proper surgical training to meet the obstetrical requirements  
I I COLDSMITH

Van Eman F T *An Obstetric Resumé* J. Missouri  
St. M. 155 1917 xiv 593

In a very comprehensive resume of obstetrics Van Eman has considered (1) normal cases with special reference to prenatal and postnatal care (2) abnormal cases with reference to various methods of delivery both by the natural channel and otherwise (3) the use of pituitary extract (4) the conduction of the third stage of labor (5) the conduction of the puerperium (6) the management of the toxæmias (7) the management of placental abnormalities prior to labor (8) the relations of the patient to the accoucheur

Normal cases naturally take care of themselves and the less interference is done the better for all parties concerned

Breech face and transverse cases may be handled according to the methods laid down by the authoritative obstetricians as all are pretty well agreed as to the best procedure in such cases. However the proper management of occiput posterior is still an unsettled question. The author favors pushing up the head and by the combined manipulation rotating the head into the anterior position. When the head is firmly impacted craniotomy is indicated in the interest of the mother. For obvious reasons cesarean is usually out of the question.

The dictum once a cesarean always a cesarean the author believes is worthy of the most serious consideration. Certain cases of placenta prævia

abruptio placenta and eclampsia offer an indication for cesarean section and the author prefers early section to the prolonged mutilating vaginal procedures for such conditions.

A word of warning is sounded regarding pituitary extract. Small doses often repeated are far preferable to one or more large doses. Three minims repeated three or four times during the first stage of labor is recommended.

In the conduct of the third stage of labor the author is in favor of removing the placenta if after the usual time and after failure of the Crede maneuver it does not come away.

If the asepsis is perfect and the hands are properly gloved and sterile there should be no danger in manually removing the placenta. It is vastly safer for the patient than leaving the placenta inside the uterus.

The best way to treat eclampsia is to prevent it. Expresses the author's views upon this subject. Prenatal care should eliminate the occurrence of any real cases of eclampsia.

Placental abnormalities prior to labor are serious obstetric complications and there is no watchful expectancy treatment. Once the diagnosis of placenta prævia or abruptio placenta is made pregnancy should be terminated. Cesarean section is certainly indicated in selected cases of placenta prævia and abruptio placenta.

In conclusion the author makes a plea for better obstetrics and better fees and offers the suggestion that the surest and quickest way to raise the standards of obstetrics is to raise the fee for the work.  
H B MATTHEWS

## GENITO-URINARY SURGERY

### KIDNEY AND URETER

Burn J E A New Method for Locating Small  
Calculi in the Kidney by Operation J L I  
97 55)

Sometimes great difficulty is experienced after  
exploration of a kidney in locating a small calculus  
with consequent mutilation and irreparable damage  
to the kidney parenchyma. Splitting of the kidney  
incases the possibility of postoperative hemorrhage.

The author has devised a method for accurate  
location of the tumor. The patient is sent to the  
hospital for roentgenograms. After exposure  
of the kidney the plan of the tumor is mapped out  
and by means of a tag and needle or fine  
probe the operation is effected. The shadow of the  
tumor is then traced on the border of the plan  
of the kidney. The measurement is then  
referred to the ureter of the kidney. The same  
method is then employed in mapping out the  
location of the tumor on the border of the  
kidney. The point of the needle coincides and  
needle inserted perpendicular to the surface of the  
kidney at this point the calculus passes through  
the kidney comes into the ureter.

H W P G G MEYER

C t no E C l c lu Anu a n a S l t a r y k d n y  
(\ l l n ) R f  
f l g i B A 9 4 3

In a man thirty years of age with symptoms of renal  
lithiasis the author made a pyelotomy. The left  
kidney was found enlarged with an abundance of  
purulent urine in the pelvis. It was not possible to  
locate a stone in the kidney. The next day a small  
stone was found in the ureteral orifice which  
spontaneously discharged. All attempts to obtain  
urine from the right side had failed so could any  
ureteral orifice be found by instrument in order  
cystoscopy on this side.

During the first eight days after operation urine  
was discharged through the wound. On the ninth  
day it was possible to pass a sound in the left  
ureter and purulent urine was obtained. After  
ward the urine on as spontaneous through the  
ureter. The wound completely closed in five  
days after intervention. Clinical tests satisfied  
the author that the right kidney was absent due  
to a congenital cause. W A B E

M c G o a n G L f l t i C y t i t i s C i f S t J  
M d 9 5

Lymphatic cystitis is a pathological process  
apparently arising from the focus of focal infection

with any constitutively definite or specific cause  
though passive congestion with ammoniacal de-  
composition of the urine is present. It is much like  
an exfoliated dermatitis but unlike the latter  
is complicated by suppuration. There is bloody  
foul and purulent urine increased frequency of  
micturition regular retention and passage of  
gravel preceding the exfoliation. The capacity of  
the visus is permanently diminished and hence  
frequent urination is the rule in those cases that  
continue. The disease is much more common in  
females than in males and has often been noticed  
as a complication of congestion of the vesical  
mucosa in gynecological and retroversion of the  
gravid uterus. In the male it has sometimes seemed  
to follow uremia in uraemia.

The author quotes a case in a woman. The  
patient presented a condition of the bladder mucosa  
concealing the urethral meatus and from the urethra  
sheds like lactated mucus.

In treatment of these cases is by reposition of  
the displaced urethra in the knee-chest position.  
The author has noted the occurrence of moderate  
gastrointestinal catarrh and pressure of a prolapsed  
stomach and has cured cases by postural  
and abdominal support.

In the presence of retained urine an indwelling  
Pepper or Malecot catheter should be used and the  
bladder drained frequently with one of the usual  
mild antiseptics while at the same time the kidneys  
should be kept active under forced water and mod-  
erate doses of benzoate of soda given to insure an  
acid urine being poured into the kidney pelvis. The  
bladder should be examined from time to time with  
an operative cystoscope and any loose membrane  
removed through it. Oil of sandalwood and hex-  
methylamine are useful on the membrane. The  
loosened itself. If diptheria were shown to be the  
cause of pseudo-diptheria the use of antitoxin  
would certainly seem rational. Vaccines have doubt-  
fully been used. Cystotomy may be necessary for drain-  
age. General hygienic measures good food and a  
continuous esophageal catheter are the measure be-  
lieved for obtaining relief.

In late stages the mortality is from 20 to 50 per  
cent and complete restoration of vesical function  
unusual.

The author treats a case of membranous cystitis  
in consultation. The patient while recovering from  
a severe type of pneumonia was attacked with  
cystitis. Examination showed cystitis  
incoercible and a residual very foul urine of  
about 50 cc. A culture made from the urine  
perfectly pure colon bacillus. An operation cysto-

scope located a number of loose pieces of membrane together with a calculus which was crushed and removed. An ureteral catheter was passed into both ureters which were dilated. The urine of both sides was cloudy. Microscopical examination showed a little pus and a few colon bacilli on the right side and on the left considerable pus epithelium debris urites indigo and an occasional red blood cell. She had hydronephrosis of both kidneys. The pelvis of both kidneys were washed out with a one fifth per cent solution of silver nitrate.

A vaccine was prepared from the culture and the initial injection of 25 000 000 given at intervals of five days the quantity was increased until it was 150 000 000. The bladder was cleansed twice daily by irrigation with mild antiseptic solution. Dribbling ceased and she regained vesical consciousness but there was some residual urine this disappeared following lavage of the kidney pelvis with 5 per cent silver nitrate. Her general condition has much improved but the bladder capacity has never exceeded 100 ccm.

THO DROZDOWITZ

#### Buerger L. Three Unusual Cases of Renal Tuberculosis. *A. J. M. J.* 1918, 8, 116

Buerger calls attention to the difficulty which may be encountered in diagnosing at the time of the operation tuberculous lesions of the kidney. He reports three such cases. In the first bacilli of tuberculosis were isolated from the urine there were characteristic symptoms of tuberculosis and yet the kidney even after removal was practically normal to the eye. Only after several sections had been made through various parts of the kidney were ulcerative cheesy lesions found involving one of the calyces. The ureter was in this instance markedly thickened.

A second case in which the parenchyma at the time of operation showed no change whatsoever showed however induration about one of the papillae and near it a small oval ulcer of irregular contour with a slightly hemorrhagic base. Elsewhere the pelvis seemed normal. This case illustrates an early case of tuberculosis of the kidney with no signs of involvement of the parenchyma with dissemination of the process by way of the pelvic mucosa rather than upward into the cortex or pyramids.

The third case was one in which a solitary papilla was markedly involved with involvement of the wall of the calyx. Externally there was no evidence of tuberculosis nor did casual inspection of the bisected specimen reveal it.

J. S. EISENSTADT

#### Geisinger J. F. Renal Infection. *I. J. M. Sc.* 1917, 41, 883

Geisinger gives an analytical report of 80 instances of non tuberculous renal infection. Fifty four per cent of the cases studied bacteriologically harbor some member of the colon bacillus group 34 per cent staphylococci and streptococci while 16 per cent are mixed infections and give evidence that the

colon bacillus is a secondary invader. Only one half of the series was studied bacteriologically.

The author considers that direct ureteral ascending infection occurs in very few cases the lymph channel not commonly while the hematogenous route is the method in a vast preponderance of cases.

He considers the coccus infections to be more severe resulting in surgical complications more frequently and presenting a symptomatology not unlike that produced by the colon bacillus infections but more severe. Blood culture may be positive in either type of infection.

The coccus infection involving the cortex and that portion of the kidney distant from the pelvis and not particularly concerned in the elimination of phenolphthalein produces little or no microscopic changes in the urine or change of the functional capacity of the kidney as determined by the dye output.

With bacillary infections however the pelvis and convoluted tubules being primarily involved pus kidney elements and bacteria appear in the urine and the function is profoundly affected. Geisinger believes that most infections are bilateral.

Thirty per cent of his cases presented no etiology, 20 per cent had a chronic constipation pre existing foci occurred in 10 per cent while anomalies and pre existing pathology of the kidney were noted in 13 of the 80 cases studied.

In 10 per cent the infection was bilateral the unilateral cases being either of the septic infarct type of infection or presenting some pathology which interfered directly with the vitality of the kidney such as strictured ureter third pelvis stone in the pelvis or ureter mobility or kink. In the bilateral cases however the infection is commonly predominant on one side.

The first symptom was pain in 46 per cent of the cases bladder disturbance 32 per cent fever 6 per cent vomiting 4 per cent general weakness 2 per cent.

Bladder disturbance occurred in 86 per cent of the cases 77 per cent had pain of varying degree usually over the lumbar region but sometimes over the bladder throughout the entire abdomen under the costal arches in the inguinal region and across the sacrum.

Chill and fever were present in 34 per cent gas tro intestinal disturbances 43 per cent malaise 40 per cent pyuria was present in all but one instance and that a perinephritic infection hematuria was present in 10 per cent.

Renal function tests are so variable that they are hardly reliable in giving a prognosis.

Forty per cent of the bladders are normal cystoscopically while the others vary from congestion of the trigone to marked generalized cystitis.

As to the treatment such conditions as perinephritic abscess pyonephrosis and infected stone must be dealt with surgically according to the circumstances while stricture of the ureter will have to be dilated cystoscopically.

Case with uterine complications demand in  
dividual decision as to treatment. Surgery should  
only be used if latent tuberculous kidneys often  
have a marked excretory power and such should  
always be considered. Genuine refusal to re-  
commend with general rather than pelvic ex-  
amination the case until that procedure has been tried.

For cholecystitis, the lesion and then not  
of the fulminant type, the not valuable term  
medical attention for treatment of pure  
antiseptic drug is applied to the peptic ulcer  
the maldigestion is due to the gastric secretion  
methyl methylene blue is used.

Vaccines are employed in the treatment of  
the tuberculous infection of the pelvis. The  
high dose of vaccine is the best. The tubercu-  
lous infection of the pelvis is the most effective  
cure for the disease. The old benefit is due to  
the vaccine.

For the treatment of the liver and for malabsorption  
of the food the liver is the most effective  
of the alimentary tract. The most effective  
is the treatment of the liver.

Certain chronic infections cannot be completely  
removed by lavage or by anything but surgical  
removal. However, temporary improvement can  
always be had by lavage, although by previous treat-  
ments the infection can be held under control.

H. R. C.

# Tenn y B. T. R. Cognit n of Surgical Kidney

B. T. M. S. J. 981 44

Surgical kidneys are those who have a symptom  
can be relieved or cured by medical means. With  
some pathological conditions which fit into this  
group the case may be a surgical state. Here the  
course of the disease may be favorably influenced.

Proper interpretation of symptoms suggests  
of surgical disease in the upper urinary tract is not  
always so concealed by vague and misleading  
descriptions as they are labeled pelvic orthopedic or  
digestive when they belong to the urinary tract.

All ages of the urinary tract are the cause of the kidney  
and hydronephrosis is a surgical condition also  
renal tubule. There is agreement about  
pyelitis. The symptom which may turn attention  
to the urinary tract are frequent urination, blood  
in the bladder urine, urgency or incontinence  
and tenesmus.

If associated with the recurrent pain or dis-  
comfort in the lower back may suggest tuberculous  
bladder. A variable temperature, loss of weight and  
the presence of albumin are additionally suggestive.

Frequency depends upon the relation of the  
bladder capacity to kidney excretion. The pres-  
ence of a tumor at the bladder or increased pull of  
the uterus diminishes the bladder capacity  
more or less according to position of the  
uterus.

The presence of pyelitis in bladder urine is  
most important but the recurrence of times diff-  
cult to locate. The presence of either is a  
serious symptom than moderate frequency and the

three combined more serious yet. The probability  
of stone, tuberculous or new growth increases with  
the length of time this combination exists.

Incontinence without urgency implies a weak  
sphincter from injury or disease. Urgency seems to  
be associated with irritation of the trigone or the  
lower ureters. Tenesmus is a further  
aggravation of urgency continuing after the bladder  
emptied of fluid.

Kidney diseases are painless unless there is ob-  
struction to the flow of urine. Unilateral pain is a  
symptom of stone when the stone blocks the ure-  
ter. Tuberculosis and cancer when a clot is passing  
down or intermittent hydronephrosis when the  
ureter is kinked and of acute infections when there  
is multiple retention of urine within the kidney  
ulceration.

Variable temperature is common. In acute infec-  
tions it may be high and in old infection subnormal  
variable.

Loss of weight correspond with loss of sleep  
and lack of appetite.

Cystoscopy study of separate urines by micro-  
scopic color test, guinea pig inoculation and  
ray examination may all be required for complete  
diagnosis.

The conditions under which these symptoms may  
develop are pyelitis, hydronephrosis, stone, tuber-  
culous and cancer of the kidney, allopia, pyelitis  
and acute hemolytic nephritis. Most of these are  
associated with infection and the cause and path of  
the infection are important.

When the equilibrium between intake and in-  
crease of bacteria and the excretion or destruction  
is upset health failure occurs. Pressure upon the  
renal vessel by inflammation or adhesions may  
result in disturbed renal function. Ligation of the  
ureter produces marked venous congestion and slow-  
ing of the blood stream. If active bacteria are  
present in the blood stream a septic thrombosis results  
which may become the calcified nucleus of a stone  
the beginning of a pyonephrosis or it may disappear.

With intermittent ureteral obstruction one may  
assume a lesser degree of the same anatomical  
changes and the blood contains white and red blood cells  
and round cells give the sediment picture of pyelitis.  
With violent bacteria present a more acute general  
reaction with high temperature, acute pain, a pro-  
tracted course, may occur with the sediment of acute  
hemorrhagic nephritis.

Hydronephrosis is applied to all cases here  
present caused by retention of urine in the pelvis.

A half ounce may cause severe pain in one case.  
Another may tolerate a pint. Much of the  
knowledge of the small hydronephrosis is obtained  
by pyelography. Absence of sediment in a  
rarely missed. It is difficult to explain a half hour  
after arrest of the symptoms a dramatic  
change in the repeated urination to after the blood  
in the cystic neck cause pain only when the ureter is  
blocked distally. The ureter may cause flex-  
ion of the pelvis but not in the pelvis unless it obstructs.

X ray plates have shown many unsuspected stones and have also failed to detect some that were present.

It is usually possible to diagnose renal or ureteral stones though not always but it is always possible to diagnose renal obstruction.

Renal tuberculosis should be recognized earlier than it is. A swollen epididymis may be the earliest sign. Others may have albuminuria, urinary frequency, hæmaturia or recurrent period of acute bladder symptoms. Early diagnosis of renal tuberculosis is possible except under two conditions: (1) if the urine is collected when no bacilli are coming through or if the ureter is blocked so that no bacilli will be found. The guinea pig test is more delicate but if negative should be repeated.

A tuberculous kidney is hopeless. Early operation is as necessary as in cancer. Early recognition and nephrectomy are essential for a cure.

The recognition of surgical kidney occurs later than it should. Too many physicians treat bladder symptoms without looking into the cause. The bladder is more frequently an indicator of disease above or below it than a primarily diseased organ. Recognition of this should enable one to diagnose renal tuberculosis, lithiasis and all degrees of pyelitis and pyonephrosis more frequently and much earlier. H C HAMER

**Johannessen C. Surgical Treatment of Wandering Kidney.** (Andrenens kirurgiske behandle) *Ing. Norsk Mag. Kristiania* 1917 lxxi 1017

Johannessen operated in 11 cases of wandering kidney all occurring in women following Rovsing's technique which according to its author gave 85 per cent of recoveries in the last series of 107 cases and 50 per cent of recoveries in complicated cases. Johannessen compares the results obtained by other operators which do not show more than 75 per cent of recoveries in uncomplicated cases.

All of the cases operated upon by Johannessen involved the right kidney. Of 7 uncomplicated cases 6 were cured and one was much improved. Four with gastropoiesis were improved and 2 cured.

He recommends careful examination of the kidney for calculi etc. before fixing it also the administration of something to maintain peristalsis after the operation. W A BRENNAN

**McNeill W H Jr. Two Cases of Inflammatory Stricture of the Right Ureter Due to a Pelvic Abscess Following Ureterotomy of the Left Ureter.** *A. I. M. J.* 1917 cli 86

The author reports two cases of inflammatory stricture of one ureter due to pelvic abscess following ureterotomy for stone in the opposite one. He regards these cases as surgical failures and emphasizes the hazard in any open operation for the removal of stone in the ureter. Both patients underwent prolonged stay in the hospital and one required nephrectomy for relief the other will require nephrectomy before clinical cure is accomplished. J S EISENSTADT

## BLADDER URETHRA AND PENIS

**Watson E M. Notes on the Recognition of Certain Lesions of the Male Bladder.** *Ann. Surg. Phila.* 1918 lxxvii 96

The author takes up briefly the diagnosis and treatment of the commoner lesions of the male bladder. He states that the success in the treatment of these conditions almost invariably depends upon the ability of the observer to interpret correctly the cystoscopic findings.

Prostatic changes are either hypertrophic (benign) or non hypertrophic. The following hypertrophic conditions of the prostate may be determined: (1) middle and lateral lobe involvement (2) Albarrañ lobe involvement (3) subtrigonal gland involvement. The non hypertrophic conditions of the prostate which are recognizable are: (1) median bar formation (2) median bar with circular fibrosis. Cysts of the prostate may also be determined cystoscopically.

True hypertrophy of the trigone is a muscular hypertrophy and is usually secondary to some type of obstruction situated directly at the vesical orifice.

Bladder changes due to spinal lesions are recognized cystoscopically by the condition of the bladder wall and by the dilated condition of the internal sphincter.

The study of bladder tumors is a most interesting and important one cystoscopically. Clinically and practically the main issue is to determine whether the tumor is benign or malignant.

Vesical calculi are readily and quickly diagnosed cystoscopically by their characteristic brownish or white color by their mobility in the bladder and by their hard consistency when touched with the end of the cystoscope.

Diverticula are usually noted cystoscopically before they are demonstrated by other means.

Primary tuberculosis of the bladder may be said to be extremely rare.

Accompanying practically all of the lesions mentioned above particularly if they have existed for any length of time there is usually a certain amount of cystitis. This may be either a generalized cystitis causing a hyperæmia of the bladder mucosa or a localized inflammation occurring most frequently on the posterior wall and vertex of the bladder. This latter form of cystitis exists often as a definite ulcer with an elevated puckered mucous membrane with broken edges. E C ROOS

**Martin S P. Dumb Bell Stone in the Diverticulum of the Urinary Bladder.** *Ann. Surg. Phila.* 1918 lxxvii 94

A review of the literature of the past ten years on diverticula of the bladder discloses only few references to instances in which stones have been found in a diverticulum. Thomas in a recent complete study of all cases of diverticula examined in the Mayo Clinic during the past eight years reported 27 cases. In only three were stones found.

Two of the each contained a single stone while the third contained several small stones but none like the dumb bell shape nor of large size.

The author reports an interesting case from the Mayo Clinic of a huge dumb bell shaped stone found in a diverticulum of the urinary bladder on the right posterolateral half of the dumb bell extending to the bladder itself. The right shoulder of the dumb bell had perforated the right side of the bladder but the stone could not be removed. The right posterolateral half of the bladder and peritoneum were removed from the diverticulum.

The patient had had acute retention of urine for some years and during this time a sudden shutting off of the urine during the night. He had never felt completely empty and during the last few days he had been very weak.

A cystitis was present at the time of removal of the diverticulum. The patient made a complete recovery.

**Treatment of Bladder and Urethral Wounds and of Kidney and Uterus and the Prostate.**  
The treatment of these conditions is discussed in detail in the following table.

A meeting of the chief urologists of the French Army was held at Val de Grace in May 1914. Legueu, Cathelin, Jeuneau and the attending staff followed the conclusion we had reached.

#### BLADDER WOUNDS

Bladder and urethral wounds are of considerable importance and are a great part of the post-war and interwar urological surgery frequently accompanying them.

The ideal treatment of bladder wounds by suture of the orifice can be done only except in the rare cases where it is not expected to be successful.

3. Patients with bladder wounds requiring the base of the wound to be closed should be treated by cystostomy and the stone should be removed by the cystostomy.

4. Immediate cystostomy appears to be the best surgical treatment of bladder wounds.

5. Enterostomy in the case of a colic intestinal fistula appears to be the method of choice in the majority of cases in which it is limited to the colon.

6. The cystostomy is a procedure which should be used very rapidly into the urogenital tract of the army whenever it is certain that the bladder and not the colon is the site of the wound and which prohibits early evacuation.

All patients with bladder wounds and evacuated to the interior should be sent to a urological center.

#### WOUNDS OF THE URETHRA

Patients with urethral injuries should if possible be sent at once to a urological center.

Immediate suture of urethral wounds is a long and delicate operation should only be attempted when associated with habitual suprapubic urinary deviation.

3. Simple evacuation by suprapubic cystostomy associated with a wide opening up of the traumatized area suffices as an immediate measure in the majority of cases.

4. All patients with urethral injuries sent to the interior should be evacuated to a urological center.

#### WOUNDS OF THE KIDNEY AND THE URETER

Treatment at the front is outlined as follows.

1. Immediate intervention in kidney and ureter injuries is only indicated when there is an important hematoma, a profuse or prolonged hematuria or the presence of an intrarenal projectile. Flow of urine through the wound does not of itself indicate an immediate nephrectomy.

When intervention is decided upon it ought to be as conservative as possible and nephrectomy should only be done when absolutely necessary.

In cases where there is doubt concerning the existence of an ureterorenal lesion the hospital record and evacuation chart should mention all symptoms likely to clear up in ultimate diagnosis.

The principal operations likely to be carried out at the front may be summed up as follows.

1. Treatment of the renal body even small non-essential fistulae.

2. Operation for purulent non-urinary fistulae. High haemostatic expectant treatment either before or after the operation or continued urethral catheterization.

4. In cases of pyuria treated unsuccessfully by urethral and pelvic lavage a temporary nephrostomy might be tried.

#### AUTOPLASTIC OPERATIONS IN URETHRAL FISTULA

It is necessary to repair every urethral defect by a method of reconstruction to war and not only from the moral and aesthetic viewpoint but also from the social and economic.

It is necessary to send these cases to the nearest urological centers on account of the long preoperative treatment and the different procedures possible.

3. It is necessary to evacuate such patients from the interior general hospital to the urological plastic operation.

4. It is necessary to say that there is no one method of treatment for urethral fistulae. If the method of reconstruction is excellent its results are particularly small. The different deductions of the method of strictureplasty or mucous transposition should not be forgotten especially in cases with large destruction of the urethra.

Experience has demonstrated the superiority of the method of internal intermittent catheterization in such method of treatment preferred to the attention of the therapist.

6 Later if necessary patients with wounds of the genito urinary organs operated upon can be evacuated to the centers where they have been treated in order to unify methods of treatment.

7 In the case of extensive mutilations and in cases of almost complete penile section the method of conservation should be applied from the beginning a primary amputation should never be made.

8 In those operated upon immediately at the front the opening up may be as extensive as is required but there ought to be no excisions because all particles of adherent skin are of great use in the course of later autoplastics.

9 In the majority of cases those patients with fistulous wounds of the urethra treated by autoplastics are available for military duty. Fistulae of the posterior urethra are excepted.

W A BRENNAN

#### Mayo C H Extrophy of the Bladder and Its Treatment *J Am Uss 017 LIV 20 9*

The author emphasizes the seriousness of this malformation and describes the associated pathology.

He discusses the various measures employed for improving this condition. Methods of plastic closure are defective because of the necessity of the use of hair growing skin adding to the foulness of the uncontrolled bladder. The septic condition of the bladder has resulted from the use of other earlier methods of relief. Use of other closed cavities as the cæcum sigmoid or rectosigmoid as a substitute for the bladder all have resulted in ascending infections.

The author describes the various methods that have been devised to guard against this. The include insertion of the ureters into the sigmoid colon in such a manner that the fecal content does not pass directly over the ureteral ends and preservation of a portion of the bladder mucosa including the ureteral orifice and its transplantation into the rectal wall to preserve the natural safeguard against infection. The latter method fails from the fact that lack of innervation causes a loss of tone in the muscularis which is essential to this mechanism.

A successful method of guarding effectively the ureteral orifice by tubularizing the ureteral entrance through the bowel wall is described in detail.

The lower end of the large bowel should be used for the site of transplantation because of its lower absorptive powers. One ureter should first be transplanted and one to two weeks be allowed for tolerance to be acquired to the urine in the bowel before the second one is transplanted.

This operation is most successful in children of three and one half to five years of age at which time they can attend to their own need. Operation has resulted in giving satisfactory function by this method.

A E DIXON

## GENITAL ORGANS

### Villa I de la A Tumor in an Ectopic Testicle (Un caso de tumor en testículo ectópico) *Rev clin de los hosp Madrid 1917, 11 41*

The case occurred in a man thirty four years old who had a hernia since infancy. The scrotum contained but one testicle. He was operated upon with the dual object of treating the hernia and of restoring the ectopic testicle to its position. The hernial sac showed two lobules the lesser in the scrotal base of the cutaneous orifice of the inguinal canal. The larger projected into the cellular tissue of the abdominal wall. The sac contained fluid only and was removed without difficulty. The orifice of communication with the abdominal cavity was large. In seeking the aberrant testicle a tumor was found which extended into the abdomen the limits of which could not be fixed by the exploring finger.

The abdominal wall was incised in order to make a better exploration. On palpation it was found that the canal terminated in the tumor and there was therefore no doubt that the case was one of a tumor of an ectopic testicle. The tumor was traced to the lesser pelvis in the space between the bladder and the rectum. It was easily separated from the posterior wall but behind and above there were firm adhesions which could not be detached. It was removed entire after section and ligation of the spermatic cord.

Although a detailed microscopic examination was not made examination of the tumor showed it to be sarcomatous. The tumor gave no symptoms either subjective or objective to denote its presence.

W A BRENNAN

### Vivian C S The Treatment of Gonorrheal Epididymitis Complicated by Peri Epididymitis *Ann Surg Phila 1918 LXVII 103*

The author briefly mentions the history of the development of epididymotomy calling particular attention to the technique described by Hagner. If the temperature falls to normal in forty eight hours after operation and remains normal the method is considered adequate but if temperature persists more radical measures should be adopted in certain cases. Obstinate cases treated expectantly for several weeks develop inflammatory adhesions between the testicle and epididymis and the tunica. Virulent acute cases if not immediately relieved produce similar pathology. These two classes relapse repeatedly or drag on indefinitely under expectant treatment.

The technique is as follows. Under general anesthesia the scrotum is opened and the reddened thickened and friable tunica separated from the underlying structures laying bare both testicle and epididymis. The tunica is sutured behind the testicle as in the bottle operation for hydrocele. The epididymis is punctured with a blunt probe and silk worm suture drain inserted to be removed in



forty eight hours and the scotum closed down to the drain. Immediate relief of pain is the rule and the temperature reaches normal in thirty six hours. Hydrocele frequently a bothersome complication is adequately dealt with.

The author draws the following conclusions: Epididymitis of long standing develops what might be called periepididymitis which is best treated by the radical method described. The epididymitis is an opportunity to return to morbid anatomy. This method has the advantage of the other surgical measure without danger of relapse. It provides the most favorable drainage possible. Fulminating acute case and cases which have been unsuccessful treated in other ways are best suited for the procedure. H C H

**Bragan M. Prostatic Infection Exclusion of Gonorrhea** (I t d d l f p t t n l u s l t b l 6 ) U d l b M d d o 7 3

Bragan has met thirty four cases of prostatic infections exclusive of gonorrhea and tubercles. Thirty six cases of prostatitis were consecutive to catheter infection but the catheterizing a failure out of three led to infection. In three to foreign bodies in the urethra and were due to descending renal bladder infection.

Of these forty four cases were followed by abscesses of which were peritonsillar, perineal, urethral and by the rectal route. The other four opened spontaneously into the urethra into the bladder and into the rectum. In the forty four cases there were deaths due to septicemia.

The author treats the symptom at length. He thinks that the majority of prostatic inflammations are best treated medically but when operative is indicated the perineal route is the choice as the rectal approach although as is more exposed to the danger of hemorrhage.

In the discussion the paper mentions many other cases of non-gonorrheal prostatic infection are reported. The paper as read at the Fourth Congress of the Association Española de Urología which met at Madrid last October. W A BRENNAN

**Suter F. Result of Suprapubic Prostatectomy** (D e l t d p b h p r t t k m e ) C B l f h l t 9 7 l

In seventy six cases operated upon by Suter by the Feyer method the have been five deaths, a 6.7 per cent mortality. In his first sixteen cases there were deaths then no deaths in a series of 40 cases and 3 deaths in the last series of cases. One death was due to embolism to the renal artery and to cardiac insufficiency.

The greatest danger is from cardiovascular affect. Hemorrhage is a serious factor and none of the various methods in use are against constipation.

In the average of Suter cases a period of four

or more weeks lapsed before cicatrization. A cystostomy is called for a new intervention. No current effects of the neoplasms were observed.

W A BRENNAN

**Pauhet V. Systematic Closure of the Suprapubic Wound in Prostatectomy** (P t t e m f m t u t m t q u d e l p l a u p b ) P t d l a r o 7 p 7 9

In Feyer's operation according to Pauhet the wound requires from three to eight weeks to close. Pauhet says that each forms a figure eight. These bring the cut edges together at the same time approximating the cutaneous edges. They are passed through the rectus muscle and the incision through the outer blade of the skin wound closed by McCall's clips.

By a technique which he describes and illustrates Pauhet says that complete cicatrization can be obtained in from twenty to twenty five days by following a systematic closure of the wound.

After the operative intervention the bladder is closed by a nonpenetrating U sutures with No. 5 catgut and the are knotted. The bladder must include in the suture.

Three tubes of silk worm gut are taken in such a way that each forms a figure eight. These bring the cut edges together at the same time approximating the cutaneous edges. They are passed through the rectus muscle and the incision through the outer blade of the skin wound closed by McCall's clips. A compress is applied over the clips and the silk worm gut padded and knotted over the compress.

After operation a Marion drain is fixed and remains for one day. On the tenth day it is replaced by an urethral sound for three days. The suprapubic wound can then be sutured. After suture a neorectal catheter is fixed and remains eight days. On the twenty-first or twenty-second day the wound is withdrawn as well as the suprapubic suture. The method has always been successful. It is suited to combat urinary fistulae in wounds which showed very retarded cicatrization. The constant success of secondary sutures had encouraged the author to systematically practice it early in all his operations of this kind.

There may be some urinary complications but they usually clear up if the prostatic excision has been correct and complete.

Pauhet calls particular attention to the desirability of not leaving any particle of prostatic debris and to leave the cavity clear. If not the recovery may be protracted by complications.

Pauhet has operated in 47 prostatectomies. In his last cases of 40 there has been no death though the cases accepted are constantly becoming more of a risk a regard the heart and kidney conditions.

In the technique operation the patient is retracted to a nonnutritive diet as far as possible but otherwise is on normal life. When the suggestion is made his physical condition in every way is satisfactory and he is in a good time for the second operation.

W A BRENNAN

# SURGERY OF THE EYE AND EAR

## EYE

Allport F The Removal of Steel Particles from the Interior of the Eye by the Magnet *Ill J* 1917 xxxv 395

Unless the foreign body is quite apparent it is often believed there is nothing in the eye and X ray pictures even though not infallible should always be taken in view of possible subsequent litigation.

The author deprecates intra ocular procedures for extraction though he admits that some eyes have been saved by such methods since the particle if not removable by a powerful magnet applied to the lips of the wound is either behind the eye or stuck fast in its coverings and had to be left alone.

It is unwise to use the magnet for diagnosis as it creates too much intra ocular disturbance if steel is there and a diagnosis can be made better by gentler and surer method.

An eye which shows a wound of cornea sclera or lens may have nothing in it a long particle may have produced the wound and then have been removed by winking or otherwise.

Where a large particle has entered the eye enucleation had best be done at once. Haab advocates the anterior portion of eye as the route for removal but the author disagrees in his experience scleral incisions are much safer and easier than endeavoring to draw the particle over the ciliary processes around the lens and through the pupil and corneal incision.

The Victor and Sweet magnets are recommended as an equipment.

Subject to modifications the author's method of extracting foreign particles is:

1 If the particle is in the lens or anterior to it extract through the cornea massaging and washing out the injured lens matter.

2 If the particle is posterior to the lens make a triangular conjunctival flap with the apex forward and incise the sclera with a Graefe knife between and in the direction of the muscles placing the magnet in a position judged best after careful study of X ray plates. S S Howe

Calderado Clinical Anatomic and Bacteriologic Researches on the Lachrymal Glands (Sul estrazione della ghiandola lacrimale) *Ann di Ottol* Roma 1917 xl 35

Calderado's results are as follows:

1 The abundant and continuous epiphora persisting after destruction of the lachrymal passages depends in the majority of cases upon abnormal hypersecretions of the lachrymal glands.

2 This disturbance ceases on the removal of the orbital lachrymal gland and more certainly with the removal of the palpebral part.

3 Such intervention is easy and rapid and is always efficacious since at the same time it suppresses the function of the orbital gland by destruction of its secretory canals.

4 The lubricant fluid of the conjunctiva which contains traces of albumin is always kept alkaline by the presence of chlorides after removal of one of the two glands.

5 The removal of the orbital gland reduces the quantity of lachrymal secretion below the physiological limit and explains the function of the gland for the continuous lubrication of the conjunctiva.

6 After removal of the orbital gland or the palpebral gland the conjunctiva is insufficiently lubricated from 2 to 6 days. This is compensated in time by hypersecretion of the subconjunctival glands. In inveterate trachoma alterations of the subconjunctival glands are never absent they may atrophy and disappear. Removal of either gland exposes the eye to parenchymatous dryness.

The palpebral gland may safely be removed when the conjunctiva is normal it is always contraindicated in extensive and deep forms of cicatricial degeneration of the conjunctiva by trachoma etc. in such cases conservative surgery such as Toti's operation is preferable.

The microbic contents of the conjunctiva in the case of abundant epiphora consecutive to removal of the lachrymal sac are slight and inactive after the removal of one of the glands there is an increase. When the conjunctiva is affected by chronic trachoma the microbe content is greater so that the integrity of the cornea may be menaced.

W A BRENNAN

Carr A M Tension in Normal Eyes Before and After Tonsillectomy *Arch Ophth* 1918 lxxv 46

Observing that cases of iritis with secondary glaucoma had shown improvement in the iritis and marked lowering of tension within twenty-four hours after the removal of abscessed tonsils observations were made with the Schiotz tonometer on one hundred cases to determine exactly what effect the operation had on previously normal eyes.

Tension was taken a few hours before and twenty-four hours after removal of the tonsils.

In two cases of secondary hemorrhage there was a considerable degree of exsanguination.

In 95 per cent there was no variation between the reading before and after greater than 2 mm which is in the range of the normal error of observation.

No case showed a variation of more than 5 mm.

and the author felt justified in concluding that tonillectomy even when accompanied by consideration of the haemorrhage is of no effect on normal intraocular tension. S H E

Manson S H C Re J E S of Scho I Ch I  
Dr Oh St M J 9 83

The author rectified the previously mentioned in the Cleveland hospital noting that the cause of the eye of child.

In the first place an eye clinic has been established at one of the hospitals where the children's eyes are refracted and the usual follow-up system by the nurse is followed.

In the second place the results made for education of the blind in the public schools.

In the third place a special entrance is established for these children in the event of defects so that they do not see enough to interfere with the progress of the disease and yet have a chance that they do not let him to reach the right age.

These last considerations make the author's mission clear and include (1) myopia (2) glaucoma more defects (3) children having macular leucocoria of the retina (4) more than 6 years (5) hyperopia (6) more than eight diopters (7) hyperopia and having symptoms of the (8) congenital cataracts which have been reported upon these cases (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104) (105) (106) (107) (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120) (121) (122) (123) (124) (125) (126) (127) (128) (129) (130) (131) (132) (133) (134) 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# SURGERY OF THE NOSE, THROAT, AND MOUTH

## NOSE

Glenon E. B. The Treatment of Suppuration of the Accessory Sinuses of the Nose *Laryngol* 1918 xxviii 1

The author makes a plea for non operative treatment of suppurative conditions of the accessory sinuses by substituting the suction apparatus for the knife

He states that he obtains entirely satisfactory results and that he has done no operative work except on the antrum since using the suction apparatus

Case reports of the following conditions are appended in order to illustrate the results obtained

- 1 Severe acute frontal sinusitis
- 2 Acute suppuration of the anterior ethmoid cells with an orbital abscess
- 3 Acute suppuration of the right frontal sinus
- 4 Chronic suppuration of the frontal sinus anterior ethmoid cells and antrum
- 5 Chronic suppuration of the left frontal sinus
- 6 Chronic suppuration of the posterior ethmoids and sphenoids

Otto M. Rott

Stein O. J. A Case of Nasal Sarcoma Cured by Radium *V. I. M. J.* 917 cvi 1075

Following the completion of the treatment of this case by radium there was an opportunity for a postmortem study the patient having died from an unrecognized suppurative appendicitis

The case was first seen in July 1916 At that time the patient was anæmic and poorly nourished The right eye protruded so that the lid could not cover the ball The anterior nares were excoriated from nasal discharge the nasal bridge was widened and the surrounding tissues thickened There was occlusion of the nares the patient being a mouth breather The right nostril was blocked by a pale colored hard mass which showed beginning necrosis There was a large painful mass of cervical lymph glands on the left side The patient's age history general appearance local findings and microscopic findings all supported the diagnosis of a sarcoma of the round cell type

The attempt at surgical removal was a failure and radium treatment was undertaken From September 25 to January 7 treatment was given to the primary growth and also to the secondary involvement of the cervical glands a total of 4 100 milligram hours being given about the nose and 2 125 milligram hours about the large glands

At the last examination there was no evidence of a tumor The general condition was improved and local symptoms were entirely relieved

At the postmortem a most thorough examination was made of the skull and accessory sinuses and no evidence whatever could be found of the new growth The author's opinion was that there had been an absolute cure of the sarcoma W. A. Evans

## THROAT

King J. J. Systemic Conditions as the Result of Tonsillar Infections *Med. Clin. N. Y.* 1918 1 97

The author reports two cases

The first patient had an acute endocarditis valvular disease complicated by pericarditis with effusion the focus of infection was in the tonsils He was gradually getting worse under ordinary treatment i. e. digitalis sodium salicylate bicarbonate of soda etc but after he received vaccine improvement began Autogenous vaccines from the staphylococcus albus were given The patient felt so well that he refused to have the tonsils enucleated

The second patient had a chronic infectious arthritis and a gram negative diplococcus infection of the tonsils Under autogenous vaccine treatment 200 000 000 three times a week great improvement resulted After the activity of the infection ceases the tonsils are to be enucleated Otto M. Rott

Isaacs H. E. Stenosis of the Nasopharynx Operation with Prostheses *La Jugoecol* 1917 xxvii 885

The method employed to maintain the opening was by means of an appliance consisting of a pair of wire spring holders fitted to the molar teeth on each side of the upper jaw joined by a bar fitting into the arch of the palate From this bar two wires run back to the nasopharynx and support a vulcanized rubber tube made into a form conceived to be that which the operative opening would measure

Otto M. Rott

## MOUTH

Toomey N. Congenital Paramedian Sinuses of the Lower Lip *I. I. P. Dial* 1917 xxiv 9 4

Toomey reports an interesting case of paramedian sinus of a female child eight months old full term and normal delivery having a complete cleft of the hard and soft palate a double harelip complicated by a sinus on each side of the median line of the lower lip which upon squeezing yielded a small amount of clear mucus Just in front of the sinus openings were hemispherically raised areas about four mm in diameter Toomey gives a resume of the bibliography of this abnormality involving the lower lip M. N. Federspiel

T t t W S guest To ard S y t m t e  
Op t T t m n t of Gun l o t W n d s f  
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The tr t n t t k l t t r t u t t l n  
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s l o g h n g

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t h e c n l e c e n c l e h n t l y

3 D i f f i c u l t f l a t i c r e c n s t r u c t i o n f t h e  
j a w R e l a p e f e p a f t e r b o n e g a f t i n g v y b e  
d u e t o t h e i m p o s s i b i l i t y f p n g t h b o n  
e i t h e r i l e f i t e g p t h u t o p n n g t l e b u c c l  
c a v t v o r t m p l a n t t i o n f t h e g a f t t h e e f t  
c a r w h i c h e u l t d f m p r l g e l p p u a t i n

W h n t h a b e n a l a r g l y s f b o n e s u b  
s t a c e s s e y m m n m o u t o f t r t  
c n l e a l t n t u c t o f t h e b o a d i t i  
t w a d t h e l t t e r p u p o s e t h a t t r a t m e n t m t  
b e d i r e c t e d I f l y i x t i o n d p l a c e m e n t o f t h e  
f r a g m e n t s a n b e p e v e t e u t i l r e c o n t u c t n  
c n b e u n d e t a k e m u h t h e b t t e r b u t t h e  
r c n s t u c t n m t b e r e g a r d d a t h e e n t a l  
p u p o e

T o c o n d e a t i f t r e m e n t c e m a y b e  
d d d i n t h e c l e

F a c t u r t h t n l e r b l e l f u b  
s t a n c a c t u a l p b l e

F a c t u r e t h c d e r b l e l o f u b t c e  
e i t h e r a c t u a l i r i m m e d i a t e d t r u t i o n p r b  
a b l e f r o m n e c r b t t h t h e s u p e r f i c i a l s f t  
p a r t s m o e o r l e s s t a c t

3 F r a t u e w t h o n d e r a b l e d e s t u c t n o f

l e n l o r y i n g f t p a r t a v h e n t l e o e a n d  
l e p t f t h f c a r e b l o v n a v y

F h t t l s l e n l t e f t t o t r e a t m e n t b y i n t r a  
l c l t t n t d i a y b e e p c i e l t o g e r e s u l t s  
l m t a g l a t h o e o f t h e o r l a r y f r a c t u e l  
j l l l l f t t h e t e n t e n t f t h e t h i r d  
l e t l l a l h r e T l e c c n l c l a s i a n  
e j l l y m n d t r o u b l e o m e o n e

I t n t h d l l f e a e t h a t a c c e s s i b i l i t y  
f t h t t j r t c e t r m a n l t h e o l a r y m e t h  
l t t t l f h e m r r h g h e r e a r e h e l p l e s s  
I r t t l e h l o u n d b y u n c o m p r o m i s s  
d i n f t h o l y n g s o f t p a r t s i n o r d e r t o a l l o w  
o f u c h v i o n f t h e o u n d s u r f a c e a e e m  
n c r y a n l u s e q u e n t s u t u r e i s t h e f r s t s u g  
g t i l i a c o n d e r a t i o n o f t h e g e n e r a l s u g i c a l  
p i c p l e j o i d e s

I t h a l l e e a b l i s h e d b y A r a y t h a t c o n  
l e b l e l t u t i o n o f b o n e h a d o c c u r e d a n d  
p s b l y t t f u r t h e l s s b y n e c r s i s w a s p r o b a b l e  
v u l l e c l a r t h a t n a t t e m p t t o s e c u r e u o n b y  
o r d n r y m e t h o l v a s p o s s i b l e a n d t h a t e v e r y  
t h n g m u t l e d n e t o f a v o r t h e s u c c e s o f t h e  
n e e v p l t i c o p e r a t i o n

A p e l n r y p u n c t u e l a r y n o t o m y s h o u l d b e  
l o e n d t h e p h a r y n p l u g g e d o r a n i n t r a t r a c h e a l  
a a t h t c g e n T h e f r a c t u e s h o u l d b e e x p o d  
l o e f a g m n t f b o n e r e m o v e d t h e w o u d n t h e  
o i t p a t s e t d t h e e d o f b o n e f r e h e n e d b y s a w  
c u t a n d t h e a l c o l a r b d e r c u t b a c k t o a n a g l e  
T h c h e e k f l o f t h e m u t h a d s i d e o f t h e t o g e  
s h o u l d t h n b e b r o u g h t t o g e t h e r v i t h m a t t r e s s  
s u t u s t o b l e r a t e a n y v i t y b e t e e n t h e e n d  
f t h e b n e A l a g e o p e i n g s h o u l d b e l e f t b e l o  
t h e j f l a i a g e I n t a b u c l h a t i o n s h o u l d  
t h e n b e u d i f p o s s i b l e a n d t h e n e c s r y p l a s t c  
o p e r a t o n h u l d b e p s s i b l e v t l n a f e c k

P l t i c p e r a t o n s n t h e m n d i b l e a r e e s p e c i a l l y  
d i f f i c u l t b e c a u o f i r r e g u l a r s c a n h c h i t i s  
d i f f u l t t b u r y v g r f t w i t h u t o p e n i g t h e b u c c a l  
a v t y I t c m r n o n a b l e p e c u t i o n t o m a k e  
n f f r t o m a i n t a i n t h e v a l i d i t y o f t h e b o n e g r a f t  
m p l a n t e d n t h e j a t h e n c a n b e d o n e b y u s i n g  
p d c u l t i g a f t s e e c g a p i e c e f b o n e t o  
l i h m l e a t t a c h e d a n l u n g t h e m u s c l e a s a  
p e i c l T h t n o m t d t b e t t a c h e d t o t h e  
k u l l t h e t p u a n d l e v a t o r a n g u l i t o t h e s c a p u l  
o r c l a v c l e b u t e p e c l l y t h e s t e n o m a s t o i d t o t h e  
i n n e a n d f t h e c l a v i c l e n d t h e m s e l v e s t o d e t a c h  
m e t a n d p l a c e m e n t n t o t h e g p i n t h e j a t h e  
b n g r f t b e n g m u t a i n e l i n p o s i t i o n b y s c r e w s  
o r p l t e

V C H e n t

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## SURGERY OF THE HEAD AND NECK

### Head

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9 O p h t h 54  
C g t l y t f t h f t t l o v M c h r  
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O t t l t c t p t f t h f t l s n I B  
4 m m d l A 9 8 58  
I d r p h y f l j d l m t f t h t h  
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 c l l J L a t s x 5  
 f l m y t t m H R B A C K a d S O B L A C K [424]  
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 T s t m t l d l J B C E L y  
 m d s 9  
 I l l t t f p t e m b l J G r o t  
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 J H F I n t t J s g 9 8 1 [4]

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Calif St J Med 918 xvi 23

Ope t m t l d f th i h a m l d A A I t y t r l f t l f u t h o p  
 L F N Y M J o s d o l th [433]  
 E M R f h m h l d l th F  
 A f t l l t f l l t h j t t m t t  
 h e m l d H J S J A m M A y s l

### L Pan and Sple n

P m v m f l f l h l l l  
 J P C C i A m J M S s l o [434]  
 J A t a l r h M S N d m d A k  
 S t k h l m o I n M l N  
 T y p m t l l y l l u l l  
 b l d H S S k F k s l c  
 N S m b t l l l d d l t  
 m l t t m t M B g M d l o s  
 C l l d d t l l m l t l s e f t h n t l  
 g t l J H C A m J O l t N Y 9  
 l q s b f t h l l l f l r W f f A  
 S k l h l o l f l J k A [434]  
 G l l t l I J k A f l l  
 o s l 4  
 G l l b l d l g v H H M v J l d S t  
 M A 9 4 f [434]  
 C h l y t t m th f t f c s i t l  
 p f g l l b l d l t T A m J  
 S k 9 o f t h l l v t t J l B t l t M A  
 S J 9 s l

C t t t l p J R S P A R K S J S C  
 M A o s l s t t m y th cat l e n t e f  
 Th f t t J k f E D d W E B t G E A c h I t  
 M d J s o [436]  
 A J t t n t m t r u p t f t h s p l e e  
 O F S T T C h k M R 9 8 l  
 C h t l p e j h l b l l q e t p o t h  
 J t l t l b l d t o t h g e t c i r c u l t  
 W C B R i J L p M d 9 7 8 4 9 [436]  
 A t t l f p l c y t h a m th l g d s p l  
 A t d l W T L N G E M e d C l N  
 A m o l 4 6  
 E l g l p l c d a d e e S h A G y  
 H p c o s  
 B t l C N R D S m r and L [437]  
 A J M S 9 7 l 8 9 3  
 A l f m l y t t d b y p l e c t m y t h  
 r j t l t o f l b l o d a d p l C R F o r r  
 l l C A H A L D L n t L o d i o 8 c [437]

### Mi ell neous

Th t l l J B D r A V E M d R c 9 8  
 A b l l p B B S E D L A J S C a M A  
 o s  
 Th l n f a b d m i l p c h l d  
 W E H t M d R e 9 8 o o  
 R t p e t l h th d o d e j j l f s a  
 H G A m J O b t N Y 9 8 l

## SURGERY OF THE EXTREMITIES

### Diseases of Bones Joints Muscles Tendons — General Condition Commonly Found in the Extremities

B e y t l m o f P N k M g i  
 L a e g d k k t n o l 3 6  
 L t o t h t m l d j h y l g l p n p l  
 u d l y t h t e m t f j f m l b e d  
 o t s A k r u M d P & C 9 8  
 C g t a l m l t p l m l f m a t P B E  
 R d t h p l 9 4 4 0  
 O t p c t t d t h t t  
 m t i c b o e l L B e x d A L u m e n d C  
 D U V E R B u l l m d P 9 8 3  
 C g t l b l t l l t f p e e t m t y f  
 r a d i u s v i t h v n t f b f f r m A m d  
 o t h s R e d t h p P 9 8 v 7  
 O l a l b r s t i d f l f m d n a  
 C H A P U T B u l l t m m S d e h d P 9 7 l  
 5 7  
 I t r n l d g m t s f t h k C W D E L A T A  
 W t M T m o 8 x x x 6  
 C e f t h t n a p f k j t b o t d b y  
 j e t n f l l u e W H H i T E R L t L o d 9 8  
 c 3  
 H y p e r t p h u l l s y n t u s f t h k n j i n t P H  
 K R E U C H E S r g C l C h g o [438]  
 O f t m a l t f g p t l l a t h e d i s f  
 t r a m t l o f t h k P R E B O L D R m e d  
 d l a S e R m 9 1 7 6 5 3

W d f t h k j t B M v n h B t M  
 S J o l 7 7 l t f c o n s e t p e [438]  
 O t h p e d d f t l l G N E J O S S E R  
 t a w d f t h k  
 l d t h l 9 8 5  
 G h t l f f m D N E I S v D R T H S u r g  
 C l C h g 9 3 9  
 T s e f s t f f m d l p m t g n a l  
 b f d C o t B o r S E R d t h p P r  
 o 4 3 7  
 A m l p e n t m a o f t h t h C H A R G O N E L  
 J d m d B d 9 8 l 5  
 S w l l l f a i t u n d R G R E G O E d  
 M R S l m d o 7 5 0 6  
 T b l t p b l y t g t c l a t t f r a l g  
 t m A M C H E R R d o t h p P 9 8 5 3  
 T h m t b l m d t m t o f h m t o d t h n i s  
 R P E R I M J 9 8 x x  
 P m o c p p t t h t f h p j t F  
 P P m e d l 9 7 p 6 6  
 F t h t r i b t t t h e t m n t f t e d  
 h t h t h d t e g y E  
 Z U E L N Y M J 9 8 c v 4 7  
 T h t m t f t u b e c u l 4 7 f t h l o e r j i n t s  
 d f t h p H F W T E R H O L S P u t L o d  
 9 8 8  
 C l m d p t t d o h t h m l t g t e  
 o m a L A P o E R O C l l d M J 9 8  
 G e c r v t m f p e p h e r i g n C P A S T I N  
 R f m d N p o l 9 7 x x x 3 7

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C l n K l C ll L w B C w f d V C D d N t h n S D I I I D L D p d V E D d m n  
A H y D L G D w a n F d k G D y A l b t E h f d E l l F h l E l l B F l h H H  
F l h I G b H m a n B G D l d C G d F P H m m o d T W g H m  
J m P H d Ch l G d H y d L t H H l G W H h R b e t H I v y P H  
K ch H l d P K h n J J K u r l a n d L c a n H L a n d y F l A L a r H l y B L d W l l m  
C p e t M C t y U b M B F M G a t h R W M N l y M M M l l A l f d H N h n  
E g J O N l l M t t h w W P k d F k W P E g H P l M t B R h l g E C  
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H h N S p t H a n y T L f t H n D S H l l J h C H t C D H l m F C l v g  
N m n L K n p e G g W k m k H W K t m y R H K h J u l L c k H m a n L o b e  
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## EDITORIAL ANNOUNCEMENT

THAT the infant and child is not simply an adult in miniature and cannot be so treated surgically is recognized by pediatricians and is being lately emphasized by the pediatric surgeons. The infant's delicate organization requires of the surgeon the possession of special qualifications and a wide knowledge of surgery.

A review of the extensive literature dealing with surgery as practiced on children has been prepared by Dr. COLEMAN G. BUTFORD, Attending Surgeon to the Children's Memorial Hospital, Chicago, and will be presented in the July number of the INTERNATIONAL ABSTRACT OF SURGERY. The author's broad experience in this field permits of a well-balanced résumé of the published material which will put our readers abreast of the science today.

In what should the ante- and postoperative treatment consist? What details of operative technique must be observed? What are the various indications for and the methods employed in infant blood transfusion? What are the indications for and the technique of craniotomy on infants? What is the status of diagnosis and treatment of acute and chronic osteomyelitis in children? What special considerations are necessary for the management of fractures in children and what is the treatment of empyema in children? These are a few of the questions considered in this review.

Because many important points in this field are not covered in textbooks and are inaccessible in the literature, Dr. Butford's review will be of special interest to the busy general surgeon.

# INTERNATIONAL ABSTRACT OF SURGERY

JUNE 1918

## ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

### OPERATIVE SURGERY AND TECHNIQUE

**Marquis and Others Suture of Wounds During a Period of Attack** (La suture des plaies en période d'attaque) *Bull et mém Soc de chir de Par* 1917 *xlvi* 2 3t

In one of the recent large battles the surgical provision made in the authors zone for immediate treatment of the wounded consisted of six large newly constructed operating rooms with accessories. In addition there were 11 surgical and 4 radiologic automobiles. The organization permitted 178 operations to be done in the first twenty four hours, the majority of the cases arriving from 6 to 12 hours after being wounded.

The authors think that in the actual conditions of warfare the wounded should have their wounds sutured whenever circumstances permit. To accomplish this all limited soft part wounds after excision were passed on to the rear hospitals for primary suture. All other cases were primarily sutured on the spot, i.e. fractures, articular, cranial and thoracic wounds in which primary suture had a functional and vital importance.

In all 298 patients were treated representing 550 wounds, 34 were soft part wounds, 13 bone, 34 joint, 15 cranial, 11 of them with open meninges, 19 abdominal and 12 thoracic wounds. Of the total 550 wounds, 109 were primarily and 340 secondarily sutured. Fifty days later 108 of the 298 patients were convalescent, 122 were progressing rapidly toward cicatrization or had been evacuated for special treatment. There are only 45 patients who have not benefited from suture. The total mortality was 30 or 6.5 per cent. W. A. BRENNAN

**Churchman J. W. A New Incision for Exposure of the Lower Abdomen and Pelvis** *Ann Surg* Phila 1918 *lxxviii* 180

The incision here described was devised by the author on account of his dissatisfaction with the

exposure given by other incisions in operating upon the rectum and on the pelvic ureter. Just as in the upper abdomen the hockey stick incision provides excellent exposure of the common duct, so the author regards his incision as the one of choice when wide exposure of the lower abdomen is necessary. The technique of the incision when used on one side alone is as follows:

1. The skin incision begins at the symphysis pubis, runs in the midline upward for about two inches, then diagonally upward and outward toward the anterior superior spine. The point at which the longitudinal incision becomes oblique may be higher or lower according as the chief exposure desired is the upper or lower part of the pelvis.

Fascial incision repeats the direction of the skin incision, dividing the rectus sheath longitudinally, then crossing obliquely the anterior sheath and dividing the fascia of the obliquus externus muscle in the direction of its fibers and as high toward the anterior superior spine as desired. It is of great importance in operating upon the bladder that the anterior leaf of the rectus be divided down to the bone at the symphysis pubis.

3. Muscle incision. The rectus muscle thus exposed is freed and divided between clamps. Care is taken to push back the epigastric vessels from the posterior surface of the muscle to clamp, divide and ligate them separately.

4. The fascia of the transversalis muscle and obliquus internus muscle and the peritoneum are divided by an incision which repeats the direction of the skin incision.

In closing the peritoneum with the transverse and internal oblique fascia is sutured by a running stitch.

The divided rectus muscle may be approximated by mattress sutures. No effort at accurate approximation should be made, nor should the stitches

be d a n t hly A good approximation of the rect mu le i ot nece ary the st en th of the abdomi l all depend on the careful closure of the ta and th t is done n the p inciple which g n the ad al cu e of he nua

The nte r heath of the rectu and fascia of the bl juu vte nu mucle a e cl ed by the e lapp th l ued n the rad cl cu e of h ni llt overlap ben btained by ne lave t m tr ut a d a ec nd lay h ch t ck l n the f e dge The kn i clo ed by a unn g titch

The utho al o descibe the bilateral inc on Th p per v ell llustated P G S ER JR

D nn G R nd Wynne M N Clinical Oberv  
ton n tll Hæmogl bn Afte Op ati n  
B ll J l H pk H ll p 9 8

The uth s d a att n t t the fact that th re r but f e t n the literatu on th l amogl b f u g cl p t n t te opetion G un ld i 890 publ hed a e f ten cases f m l h h n l u d d th t th i little o n l g chr n m u a dately p t ; tive e fte al und nt hæ h ge H rk h eve d s n t h hen f ho long th hæm gl bn f d

The l t t f the hæ gl bin u e the a tho t te s f nte r t t u gen a a l cal estimate of the am u t f bl d l t t perat n Th v h ben unable t h d any dat on th po t n th lte atur A c dng t L ke y ot ed by C un l d m med at h afte p at o th e n hange r ey lgh t h ge i the hæ o globin but afte er l d y n e n hich the e hæ be n t e e hæm rrh ge the e is al g e t reduct n f hæm gl b Afte hæmo h ge the t tal bl d lume i dec ea d th t lly f th bl d b n t h nged h t b me th ned o t ab pti n f l u d f m the intestinal t act (H pte cyle and l n l d t q ot d by G un l d)

In the e f a es rep ted by the auth th y h e d a d t h the ffect up n the hæm glob n f pe at d ng hich there has ben lgh t de ate or er hæm hage

Th Sahl hæmogl bi mete a u d f hæm gl bi d term nat n t a instrument pa tuc l v d pted t ge al l nical u e A un fo t e l n que v b r d th ough t and i l m t l l cas on t uent used f r all the re d n n g e ca Wh n t o n t u m t r e s l n th ane e they e arefully che k d aga t ach othe and orrec tion a le hen ec say The e re f re d n s n g e n c e as m de by b e er o h t to k p a t n t thei nnd g e re ca fully ntr lle i nd o rections ere made hen ec y In m t ca e the e ct me of an b e at on w ot ed o that the number of hour bet een a y t a d g c uld b deter mined ea l f m th table The blood was

obta ned f om the f ger o ea the same source beng al ays empl yed fo any given patient All of the gynecolog cal patiens ere opetated upon under anæsthesia ntous o de and oxygen follo ed by ethe admini te ed by the pen drop method In tables vhl accomp ny the a ticle the date time and cha acte of the opetion is reco ded

The hæmoglobin readings sho tly after operation sho ed vey little change vhen compared with r ad n s made bef re opetation even n ca es of eve e hæmor hage The immediate postope at ve ead ng often sho ed some increase o er the p e perat e reading The lo est point of the hæmo gl bin cur e i u ually f om 30 to 6 h ur fte opetati n a dff e nce of le than 5 pe c t n t considered

The gre t e t drop in hæmoglob n was u ally du ng the t t 4 to 36 hours and was most apid hen salt soluti n fusions had been g n

I the se e ho ng only a slgh t l os of blood at perat on the hæm glob n readings we e usually hgher during the f st i hou s th n those made bef re perat on and there v a very little po t opet e dec ease at any t me

GEO GE E DE Y

## ASEPTIC AND ANTISEPTIC SURGERY

White C S and Hunter O The McDonald Solution 4m J Ob t N Y 9 7 l 1 986

The auth s ha e a fully noted results n 150 pe t e es f the use of McDonalds py of ceton alc h l soluti on a compared ith former re ult f m the iod ne method of p epa ation I u t ble plan these fnd ng n detail and d m n tate the ca e mplo yed n making the t e t

In the pin n f the a thors the McD nald sol t on g e e ults nfer t the odine method it i not daptel for the outine sterilization of the hnd f om t irr tati g qualities it can be used f muc us membr nes t slgh tly ch per than th odine oluti on St lth at n f th sk n i un at facto y t loe n t de troy spu bearing o gan ms CAR CU ERT N

M C rtn y G E and Mewburn F H H Th Te hniq of the C el Dakin T arment B t M J 9 8 7

The luti on s p e p d daily acc rd ng to the meth d f Da f esne tested for hypochl ite content and ant t the ard n a carboy f amber glasse without th add t on of potassium pe man ganate The soluti n is tested by one of the su ge ns and f ound of correct strength the p ta um perman te is added nd the bottle sto ed a lo set until u ed

The u e of a solution around 5 p r cent often cau es a sc lded appear nce of the wound and the best re ults are obt ned wh n the strength of the s luti n l m ted between 0.460 and 0.485 per ce t

All the Dakin bottles are fitted with a rubber cork rubber tubing and pinch cock. A series of tests showed that brown duck covered bottles are the best for protection of the solution and that properly protected the solution will retain its potency for at least forty eight hours.

A dressing carriage equipped with a liberal supply of instruments syringes etc is essential. All the instruments are sterilized by ten minutes boiling. The Carrel tubes are syringed out with warm water scrubbed with a brush soaked all night in Dakin's solution washed off with ether and then boiled for thirty minutes in a caustic soda solution.

The vaseline pads are made from cheese cloth cut in strips six by four inches in sets of twenty dipped into hot vaseline the surplus being drained off and the strips placed in layers in a tin box with a perforated lid and this sterilized in the operating room.

The medical officer does all the dressings with a nursing sister and two orderlies as assistants whose duties are limited to the dressings and preparation of the same. One orderly looks after the sterilization of the instruments and their delivery the other assists with the patients. The sister's attention is restricted to the carriage handling all instruments and dressings with forceps which are not allowed to touch those used by the surgeon. The wounds tubes and dressings are never touched with the hands but always with clean forceps. No patient receives Dakin's solution less than two hours before dressing which insures the bacterial count not being diluted.

Wounds are syringed with normal saline or Dakin's solution the surrounding skin dried and one ply of vaseline gauze applied to the edges of the wound and smeared to the skin which allows over flow of the Dakin's solution without a Dakin's dermatitis resulting. The Carrel tubes are applied and the wound covered with a pad of absorbent cotton or better so placed as to catch the over flow of Dakin's solution leaving the wound as little shut off from the air as possible. The results obtained with this technique have been most satisfactory in the majority of cases. V C HUNT

**Taylor H D and Austin J H** The Solvent Action of Antiseptics on Necrotic Tissue  
*J Exp Med* 9 8 xiv 155

The recent interest in the chemical sterilization of wounds has led to the introduction of numerous new antiseptics each of which has in turn been advocated because of some advantage real or apparent. For many of these compounds claims have been made which have not always been confirmed by carefully controlled experiments. Carrel and Dehelly have emphasized that for the removal of the necrotic tissue that remains after mechanical cleansing Dakin's hypochlorite solution was the antiseptic of choice because of its solvent action on devitalized tissue and Dakin and Dunham have also recognized the value of the hypochlorite solution for this purpose.

Dakin's solution has been shown by Fiessinger and his co workers to have a disintegrating action on pus cells. Rous and Jones have shown that intact leucocytes protected virulent bacteria which they ingested from the action of antiseptics and that subsequently these bacteria proliferated under suitable conditions. Dakin's solution by its solvent action on these leucocytes minimized the danger of reinfection of the wound from this source. Because of this action on necrotic tissue pus and serum clot Carrel and Dehelly recommended Dakin's hypochlorite solution for the sterilization of infected wounds. Bashford demonstrated the ability of Dakin's solution in high dilution to erode the tissues of the tadpole's abdomen. He showed also that this occurred only after the circulation to the part had been interrupted for some time due to the death of the organism.

The authors considering this erosive action of Dakin's solution to be an important factor planned a series of experiments to compare its solvent action with that of certain other chlorinated antiseptics. Fiessinger and his co workers having concluded that the essential factor in the solvent action of the hypochlorites was their alkalinity the authors' experiments were designed to determine the importance of three factors: the alkalinity, the nature of the chlorinated antiseptic employed and the chlorine concentration of the latter.

From their results as recorded in the present paper it seemed justifiable to Taylor and Austin to lay considerable stress on the relatively great solvent action of Dakin's hypochlorite solution as contrasted with the more recent and more stable chloramines of Dakin. It also seemed probable that to its greater ability to dissolve necrotic tissue plasma cloth and leucocytes it owed its chief claim to preference over the chloramines in the treatment of infected wounds. They state that curves shown by Carrel and Dehelly demonstrated the relative ease with which this solution sterilized grossly infected wounds in the initial presence of such necrotic tissue and pus.

The results of the authors' experiments showed that the solvent action of Dakin's hypochlorite solution in the degree of alkalinity used clinically was due primarily to its hypochlorite content. The slight alkalinity of Dakin's solution while in itself without solvent action did however increase the effectiveness of the hypochlorite. They feel constrained to differ therefore from Fiessinger and his co workers who attributed this action of the hypochlorite solutions to their alkalinity. In their weakly alkaline solutions the solvent action of the hypochlorite solution ceased abruptly at about 0.2 per cent sodium hypochlorite concentration. This phenomenon occurred at a lower hypochlorite concentration as the reaction of the solution became more alkaline and vice versa. Even in neutral solutions marked solvent action occurred as a hypochlorite hypochlorous acid concentration of 0.5 per cent. A solution the alkalinity



operation that gives failure. Skin sutures should not be tied too tightly or pressure necrosis will result.

2 Wounds as the result of accidents. All such wounds should be treated as though infective material had been introduced into them. Too much done to try to remove pyogenic organisms from a wound results in more harm than good as the sealed lymphatics and capillaries may be opened up.

When a septic condition of a wound is once present it becomes necessary (1) to immobilize the infected part (2) to institute very thorough drainage by incisions sufficiently long and deep to accomplish the purpose (3) to use the hypochlorite solution in suitable wounds and situations.

Warner quotes the ideas of a number of authors along with their methods of treatment. He gives the use of iodine, hydrogen peroxide, Wright's solution, Dakin's solution and the Carrel technique and dilute solution of quinine. Freer drainage is advocated both in external wounds and in abdominal infections. One case is given in brief. Vaccines either autogenous or polyvalent have not been of much avail against the usual pyogenic organisms. CARL P. STEINLE

#### Morison R. The Treatment of Infected Suppurating War Wounds. *Internal J Surg* 1918 xxx 33

If it is possible to get to the bottom of an infected wound so that it can be thoroughly cleansed mechanically and suitable antiseptics applied the wound can then be closed with interrupted sutures always with impunity and many times with the prospect of seeing it healed when the dressing is removed for the first time at the end of three weeks. This is a new surgical principle which will not alter though details of the method will.

The technique is summarized as follows:

1 Under an anæsthetic usually open either cover the wound with gauze wrung out of 1:10 carbolic acid solution and clean the skin and the surrounding area with the same lotion.

Open the wound freely and if possible sufficiently to permit inspection of its cavity. A guide (the finger is best if the size of the wound permits it and if not a thick probe) should be introduced to the bottom of the wound and held so that it is fully exposed.

3 Mop the surrounding skin and the wound cavity with methylated spirits and dry it.

4 Fill up the whole wound with bipp, rub it well in with dry gauze then remove all excess leaving only a thin covering over the wounded surface. Dress the wound with sterile gauze and cover all with an absorbent pad which is held in position by sticking plaster and a bandage. This dressing requires no change for days or weeks if the patient is free from pain or constitutional disturbance.

Pedressing is very simply done. After removal of the old dressings the wound is covered with a dossil

of wool soaked in spirit and the sticky discharge is wiped off the surrounding skin until the skin is clean.

Necrosis of the bone is one of the end results of sepsis. A separated portion of bone will live and take its part in repair if infection of it can be prevented. This can be done by the author's method of treatment and the consequence is that the majority of the recent fractures show no necrosis at all.

EDWARD L. CORNELL

#### Magni E. Treatment of War Wounds of the Limbs in a Territorial Hospital (Metodo seguito alla cura di feriti ligati agli arti in un pedale territoriale). *Cl. d. gan. d. 110* Bologna 1917 1 325

In the territorial hospital of Bologna during 18 months Magni has treated 3618 war injuries of the limbs. He has followed the methods of the old surgeons of the nineteenth and seventeenth centuries notably Magati who advised as little interference as possible with a gunshot wound after its initial treatment not even to remove the first dressing for a long time unless under special indications. Movement according to this old authority is one of the most frequent causes hindering recovery which is the work of nature and not of the physician. Although the teachings of Magati had a large following they fell into disrepute. Magni points out that the best results today are being obtained from the application of Magati's principles of immobilization and abstention from meddling interference.

Of the 3618 limb wounds treated 373 were wounds of the soft parts alone 80 were fractures and 425 were articular lesions.

In the treatment of fractures Magni uses plaster casts. He does not remove bone chips as he thinks contrary to other expressed opinions that a bone fragment provided with marrow is a point of permanent ossification and even if it should die it is eliminated or absorbed. He only removes projectiles if they are easily accessible or cause prolonged inflammation.

Articular lesions Magni generally treats by immobilization alone and has met with very satisfactory results. Only in a few cases was he obliged to intervene surgically. He thinks emphatically that immobilization is the best treatment for articular lesions.

Only 3 amputations were necessary and among the total 3618 cases there were only 8 deaths.

In summing up his observations Magni thinks that none of the more recent methods of treatment are so satisfactory as that instituted by the early surgeons i.e. reduction, retention and immobilization of the limb in a good position by a plaster apparatus. These methods not alone help to prevent the spread of inflammatory process which are generally located in the traumatized points but they overcome them either directly or indirectly by favoring the formation of a circumscribed purulent collection which tend toward recovery after incision and drainage.



Ligat on f the la g el ca be done at any p int in thei c u p led no inflammato y p o c e e i t t f e h ther acute or chronic h n l e r the c t b l i h m e n t f c n u l l t e a l c e l t i o a n l g g e n f the t u e a l a y s f l l o i n the c u l e g o n f the l i g a t u e d e s e l The l i g a t i n f l r g e c e l a l i m b h n t u c h i m e d i a t e l t r u n q u e n c e s o n t h i r c u l a t i o n a t h f a c e l p p l i n g the e g n f t l e b

The u l e f l l l b y a r y t e n i e b i b l i o g r a p h y o f f l n e l v a r t i c l e o n u n d f t h l u m b a t i l o l e l

W A B

## SURGICAL INSTRUMENTS AND APPARATUS

F I W F T h i l Stump I t n s i n Splint  
R I W J 8 9

The t u m p f l l n g f l a p e a m p u t a t o n s o f the t h g h t h a m e u n d the u t h n t i u f f e l f o m h a n g b e n u n p o i d e l i t h m e c n t u t n i n g f o c t c u n t e a c t the n t u a l t e n d n v t i d e t r t i o n o f the o f t p t t h a t n the c l e a d t o c n l s t u m p f m t n

I f t h r e t t t the f t t i s u e p r m i t t e d t p e l e c t n l u t i l h t m n d a r y a m p u t i n p f m e l i t a l l b e the g e n e a l

experi e t h t a n u n d e l e n g t h o f the f e m u r a l l r e q u i r e r e m a l b e f o r e the s o f t p a r t a r e c a p a b l e o f a p p o x i m a t i o n a n d the u l t i m a t e s t e n e r i n g o f the s t u m p m a y p r o v e e r y d i a p p o i n t i n g

The a u t h o r p l n t a c h i e v e the r e q u i r e m e n t s i n m a i n t a i n i n g the n e c e s s a r y c o n t i n u o u s u n f o r m t r a c t i n d r i n g a l l m e m e n t s o f the s t u m p a n d p o s i t i n f the p a t i e n t i n b e d a n d d u i n g t r a n s p o r t

The p l n t i m p r o v i d e a f t e r the T h o m a s s p l i n t m d i t e d b y J o n e s f o r the a r m I t i b e n t a t the b a r u n t i l the e n d m e e t t h l e a t h e r c o v e r e d i n g t o h i t h i t s e c u r e d i t h t a p e A l e n t h o f a b u t i n c h e o f a l u m i n i m p l n t i g i t h e n b o o p i n the f o r m o f a c i r c l l p i t h i n a l t h h o o p e r t e d a d e c u e d b y t a p e o r s t r a p p i n g b e t w e e n the e n d o f the b e n t b a r s o f the T h o m a s s p l i n t

E t e n n t a p p i n g s a p p l i e d t o the s t u m p i t h t p e t t a c h e l t h e n d s o f the t a p s t o b a t t c h e d t o the s p l n t f r e t e n s i o n The p l n t i p u t n i t h the r i n g f i t t i n g v l u p a g a i n s t the t u b e o s y f the s c h m a n d e t e n o n m a d e b y d a i n g n the t p e d t y i n g t h e m t o the a l u m i n i u m l o p

The p l n t i l i g h t n d m o v e t h l l the m o v e m e n t t h e t m p the f l a p s o f w h i c h a r e h e l d i n x t e i n d the s p l n t t e l f s e c u e d b y t s e t e n s i o n b d T h p e n a l u m i n i u m r n g l l o s f o r d r e i n g a d d the e f r e e a c c e s s t o the s o u n d

A C H u n t

## SURGERY OF THE HEAD AND NECK

## HEAD

G m l n H E n d S m i t h S A S t u d y o f t h  
I n t R l t i o n B e t w n t h e R d i g a p l y a n d  
S r g r y o f G u n l t W o u n d s o f t h H e a d  
I f R d t f l i i l p 9 8 4 7

I t h e r y u f u l n l n t e r e t i n g t c l t h a u t h g e t h e p e r i e n c e f t h e l t a t t e e n m o u t h i n h t h v l a e x a m i n e d o a e f g u n s h t l f t h h l T h e y g e a u m b e o f p r c t a l l n

M e t l i f t k n r a l g r a p h S t p e e t u l A m p e n v l e t h a p p e a c u h i e l g e d b e t n t h h e a l l e c m p A p l m y i l u o p s r e e n e a m n t h l i t l t l e t h e m i l e a i n d i t c l a n e l l i r e i n g s p l c e l o v e t l e o n d s u f e T h a e a o f t h n l s h l d b e n e a r t h e p l t a d a n e a t h n t a l r y s p o b l e f r b y t h m e a n s t h m a i m m d e t a i l f t h i n j e d r i b t n e l b e e p t o n e u t i l e d a s t a d a r d h b n g o u t the i u l y l t e d l e t t h e b e t a d n t a g e

2 I n t e r p e t a t n f a l g r a p h T h i s c a r e f u l l y c o n s i d e r s t h e d i f f e r e n c e s b e t w e e n t h e f r a g m e n t s n l a r u k n d s o f m t a l p a r t l e e e p l e d T h e p a l b o l y t h a t n t p i t i n t h l i n g o t f f a c t u r d t h e c

f u s i n g e l e m e n t s f e s s e l b l d c h a n n e l a n l s u t e s a r d e s c r b e d A m e t l d f l o c l i a t i o n f m t h s t e c o p c l a t e i s l l u a t i t

3 C l a s s i f i c a t i o n o f the t y p e o f j e s t h r f e e n c e t n e d f u r g i a l n t f e n c e N o f r i c t c e e n i n the A r y a m n a t i o n m a y s i n c e the i n t o d u c t i o n o f the t e e l h l m t b e a c n t r a n l a t a g a i n s t o p e a t e n t e r e n c e S e r a l p a t n t h o h a d n the h e l m e t s h e l i n j i n t h e g n f t h a p e x o f t h t e m p r a l c r e T h e y e m i d w e l l f o r t t h r l a y s t l n i n r g o p t i c n e u t s t t s a l s e c h e d c h e d e l o p e d O p e r a t o n d l o s l p a c t a l l y o r m l b n l t l a t h w a c d r b l e p l e l b a i n l b l l e l t

S m l l b n a c k s e u l l y l e f t a l L t e n s i e s u e d f r a c t u r t h u t d e p o n e n r n n i n g d o w n t a n d i n l g t h e b s e c u a l l y l e f t l n u n s s u g e n t s y m p t m s m a n f t e l t h e m s e l f

C u t t e r f r a c t u r e s i t h o l y a l i m i t e d p r e s i o n o f the n n e t a b l e w r u s l l s p e r t l p o n t o e m e the d e p e s s e l f r g m e t s c p t o v e r t h e l n g u i t a l n u s C t t e r f a c t e t h e n d e a b l e i n l r n g f t h i n n e t b l e e p e r t e d p o n i n e a c h a s e a n d p e t r a t g f g m t e m e d

P e e t i n g u n d e r i t h n o m i l e the b i n n a r i a b l y r e q u i r e o p e r a t i o n t e r e n c e a s the t r a c k s e p t i c l h a s b o n e f r a g m e n t i n t s c u r s

Wounds with one or more missiles retained in the skull bones were operated upon generally. When the missile lay just beneath it was invariably removed. When the missile lies in the brain there is found a track of septic brain material with fragments in its course. In the beginning there was a tendency to remove all missiles unless hopelessly inaccessible but latterly more expectant treatment has been followed.

Performing wounds with entry and exit wounds present in the skull are comparatively rare since the use of the steel helmet. C. B. HOLLINGS

**Japiot P. Radiography of the Lower Jaw and the Involvement of the Teeth in Fracture Cases**  
(Radiographie du maxillaire inférieur rapports des dents avec le f. ver de fracture) *Lyon chirurgical* 1911  
xiv 83

Japiot calls attention to the growing importance of radiography of the maxillary region in war surgery and describes the technique.

About one thousand cases have been examined. The author gives the details of several cases with characteristic roentgenograms.

By inspection of the mouth alone it is impossible to detect the real lesions of the teeth and only minute roentgenograms will give the following information:

1 Any dental fragments between the fractured bones will be shown and also their differentiation from metallic fragments.

2 The fracture may involve the socket without injuring the corresponding tooth or it may involve a wisdom tooth still in process of evolution. Radiography will show the condition and in some cases of necrosis the roentgenograms show this to be the cause.

3 Teeth may sometimes act as projectiles and be driven into the neighboring soft parts such as the tongue or even into the mandible.

An immediate X-ray enables the surgeon to know exactly the extent of the damage and to prevent infection by proper removal of the organic and inorganic foreign bodies. In old cases a roentgenogram may disclose the reason of persisting infection and fistulae or of malunion or non union. It will also be of service in the application of definite prosthesis by following the formation of sound callus.

W. A. BRENNAN

**Lewis D. Electric Burn Causing Necrosis of the Skull** *Ann Surg Phla* 918 lxvii 49

The patient aged 7 while working on a corrugated tin roof accidentally brought his head in contact with a live wire carrying an alternating current of 13,200 volts. He was immediately rendered unconscious. On regaining consciousness the patient was irrational and violent so that it required three men to restrain him. Six hours after the accident he became rational.

The physician who examined him shortly after the shock stated that the scalp over the junction of

the sagittal and coronal suture had been burned away leaving exposed a part of the parietal and frontal bones measuring 4 inches in diameter. A burn of the forehead on the right side and another over the right parotid gland were noted. This latter burn had extended deep enough to destroy the fibers of the facial nerve passing through the gland. The gland substance was also partially destroyed as the patient had a salivary fistula. The feet were severely damaged by the electric shock. Above the right ankle anteriorly the skin was badly charred. All the toes with the exception of the little one were so badly torn and burned that they either dropped off or were removed.

Sloughing of the charred skin occurred much more quickly in this case than in similar cases which have been reported. Separation of the skin was completed in three weeks. Granulation tissue then developed rapidly and normally.

Almost eight weeks after the accident slight blurring of the vision of the left eye was noticed. Shortly afterward cataracts developed in both eyes.

The sequestrum finally became so loose that it could be easily removed with tissue forceps. The sequestrum contained a part of the sagittal and coronal sutures at the point of meeting and the parts of the parietal and frontal bone adjoining them. It included both plates. The dura which was exposed when the sequestrum was removed was covered with healthy granulation tissue. This granulating surface was grafted on the day following removal of the sequestrum with Thiersch grafts.

There were no changes in the respiratory digestive vascular or genito-urinary system. Muscular movements were made normally without any incoordination. The patient complained of some numbness of the fingers and also of some pain in the back but there were no areas of anesthesia.

EDWARD I. CORNELL

**Dretzka L. J. Fractures of the Skull** *J. Med. Sci.* 918 lvi 41

The location of the lesion and determination of the extent of the intracranial damage are of first importance in fracture of the skull. Operative interference is imperative in all cases of depressed fractures, compound fractures, simple fractures with evident symptoms of hemorrhage or intracranial pressure and basal fractures with symptoms of increasing pressure.

If depression is definitely localized and not extensive linear incision will suffice if not localized the U-shaped incision is employed. When it is impossible to localize bleeding which wells up into the field of operation the area can be packed with gauze to arrest bleeding. The packing is removed in twenty-four hours.

If the dura is extensively lacerated and its edges cannot be approximated a fat or muscle implant may be resorted to to cover the defect. In all basal fractures giving symptoms of increasing pressure it is advisable to resort to decompression.



rongeurs nibbling away bone until an opening of sufficient size has been secured. A more simple and satisfactory procedure is to encircle the area of depressed bone with a number of small punctures made with a perforator and burr and then to connect these with a linear cut.

In penetrating cases the proper and thorough cleansing of the track is the most important step in the operation.

The author has abandoned cutting away the torn ragged margins of the dural opening for it does not seem to be the source of infection. Retention of disorganized cerebral tissue which lines the track and in which indriven bone fragments are embedded is more serious.

A flexible soft rubber catheter has proven satisfactory in determining the direction taken by the missiles and with it the narrowest track can be investigated with almost as great delicacy as by direct palpation. By attaching to the catheter a Carrel-Gentile glass syringe the softened brain may be sucked out which should be repeated until the cavity is gotten as free as possible of disorganized cerebral tissue. At times pieces of bone come away in the eye of the catheter.

The purposeful incision of the dura in the area of a dirty wound must be done only in those cases in which the neurological symptoms indicate a serious local loss of function or in which the undamaged dura is tense and evidently overlies a clot or contused area. If under these conditions the disorganized matter is washed away until normal tension is restored and the membrane accurately closed there is practically no risk of infection.

Regarding the removal of retained missiles the author considers the middle ground position safest, namely always to extract a foreign body if it can be accomplished without increasing the damage already done when the missile is deep and always removing superficial ones. Extraction with a magnet is the only justifiable method. After the track has been cleansed a wire nail is introduced down to the foreign body and the magnet connected to the nail for withdrawal of the foreign body if it is magnetizable.

The use of watery solutions of antiseptics in the brain is disappointing; however the use of dichloramine T produced a notable diminution in the number of infections.

V. C. HUNT

#### Foerster O. An Intramedullary Tumor Successfully Removed. *Berlin klin. Wochenschr.* 91 No 14

Foerster successfully removed an intramedullary tumor from a man of forty years. The disease began with urinary disturbances. Six months later there was complete spastic paralysis of both lower limbs with exaggerated reflexes and clonus abdominal and cremasteric reflexes were lacking. There was complete retention of urine and flaccid paralysis of the upper limbs. All the muscles innervated from the first dorsal segment and from the seventh and eighth cervical segments were

completely paralyzed while the muscles innervated from the sixth cervical and above were completely intact. The Wassermann reaction of the blood and cerebrospinal fluid was negative. The latter was strongly increased in albumin and xanthochromia.

Laminectomy of the third to the seventh cervical vertebrae and of the first and second dorsal was done. The dura was tense and on incision much fluid issued. The tumor was not found to be extramedullary, the medulla being normal on the exterior. On incision of the posterior cords longitudinally on the right side an intramedullary tumor was found, its greatest width corresponding to the eighth cervical segment. It extended upward to the fifth and sixth and below to the second dorsal. The tumor was removed easily and the dura muscles etc. sutured. Recovery followed. Microscopically the tumor was a glioma.

By degrees mobility of the limbs returned but there is some ataxia. In the left arm all paralyzed muscles have recovered their function. In the right arm the greater part of the muscles have their functional capacity restored; there is still some paralysis of the thumb and of the fourth and fifth fingers. Bladder troubles have ceased. It is now one and one-half years since the patient was operated upon; improvement continues and there is no sign of recurrence.

W. A. BRENNAN

#### Conkey C. D. Ocular Symptoms of Brain Tumor. *J. Laic* 1918, xxviii 70

Conkey discusses the symptomatology of brain tumor from the standpoint of the ophthalmologist and aurist. He says that there are some classical symptoms that are common to all brain tumors and there are others that are dependent upon the region in which they are located. To the first group belongs that group of symptoms which when existing together are strongly indicative of a brain lesion causing pressure. This group consists of nausea and vomiting, headache, slow pulse, general convulsions and choked discs. In the great majority of cases such a train of symptoms indicate the presence of a new growth though they may be present in brain abscess, meningitis or tubercular deposits. Choked disc is the most valuable symptom existing in 90 per cent of all cases of brain tumor in some period of its history. It frequently exists when no other symptoms are present. Its presence should arouse suspicion of the presence of a growth of some kind in the cranial cavity but it is not always pathognomonic because a few spinal cord lesions may produce it such as disseminated sclerosis, acute myelitis, tetany and multiple neuritis.

He reports a case of an infant of six months with a complete paralysis of both arms and legs. The diagnosis of the attending physicians was poliomyelitis located high up in the cord. Examination of the eye grounds showed a marked choked disc in each eye. He fails to state the outcome of the case or

with the logos of the attending physicians  
 novel effect

Choke l d c l a l o b e r p o t e d o c c u r i n g  
 i n o m e f t h e x a t h e m t a d l o m i n t y p h  
 f e r e d i p t h r i s l u c h a n d h o p i n g c o g h  
 l u m n i l l t c f u l a l a n m a H e  
 y t h e l t n t t h e b t m e e m t o  
 g r e a t l y i n f l u e n t h e h k n g l u n f t h e f r t a l  
 l b e a r e l y p d u h k l l c a d t u m s o f t h e  
 c e r e b e l l m n l y l v l c a g g e r a l u l  
 t u m f t h b k n t p d u c e h o k e d  
 l i n c e k p p t t h f t h t h e y e  
 l o c t e d f m t h e f t l n l l e c e  
 p r p o r t n t h t h t h v l c t e l f o m t h e  
 c o r t c l e m

He t t that t g n the alu ble  
 ympt m f r l l tun r It u u lly f th  
 etul t p l th v e f m id t  
 id th a l t hre t follo ed  
 by J k t t the pp t d et  
 t e g i t t t n the le f  
 th l v l l k k l mp rm nt t  
 th th l l f l tu b n f ju l br m  
 a eal f l l l tu H m n p r  
 n f th t l l l p at t l  
 les It n t l lu l t any p t t m t  
 opt h m t l c out l l t

Wh n f l v t the  
 f t fl m y n u h i n p t t  
 f t gr th b l m yn p t l l l T n  
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In the first variety he found (a) polymorphonuclear leucocyte (b) Mechnikoff's macrophage (c) polyblasts (d) plasma cell

Oligodendrocyte cells were either absent or greatly changed. Nerve fibers were much less changed.

In the encapsulated, the pus consisted of granular bodies and a few polymorphonuclear leukocytes. The abscess wall consisted of three layers. The inner layer consisted of collagenous fibers without intact nuclei and very few vessels. The middle zone was thick and rich in pillars, plasma cells, lymphocytes, fibroblasts, and clasmatoctes. The middle layer showed many clasmatoctes, old connective tissue fibers, blasts about the vessels, plasma cells, and lymphocytes.

The author illustrates the various pathological cell types in the blood cell and he shows that the transition has been seen in a number of cases. H. V. N. B.

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Ca f true all l me ng coc c septicæmia  
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reported in literature of a low remittent fever unaccompanied by meningitic phenomena in which the presence of meningococci in the blood was shown.

The author reports such a case of remittent fever with a species of purpura somewhat like that which is termed spotted fever. There were no meningitic phenomena. Repeated blood cultures showed the presence of organisms with all the characteristics of meningococci. W. A. BRENNAN

**Segura F. V. The Treatment of Hypophyseal Tumors** (Tratamiento de los tumores de la hipofisi) *Rev. Méd. Argent.* 1917 xxxv 984

Segura reviews the various operative methods of approaching and removing tumors of the pituitary body. In his own practice he adopts Hirsch's method with a slight modification which consists in detaching one of the mucous membranes in order to render the sphenohypophyseal cavity accessible by a nasal fossa. This modification he thinks very important when treating neoplasms originating from the sella turcica which become extracellular, penetrating into the cerebral cavity and consequently incapable of total extirpation. The modification is also applicable to those cases in which although the tumor is intrasellar it has a tendency to recur. By preserving an easy open route of access to the sphenoid cavities and keeping in contact with the sella turcica the operation provides the best means for later application of radiotherapy when this is indicated.

In his last seven operated cases by this technique Segura obtained excellent operative results all healed by first intention and in a very short time. W. A. BRENNAN

## NECK

**Patel M. and Arcelin M. Extraction of Foreign Bodies from the Upper Part of the Prevertebral Region** (Extraction des objets étrangers de la partie haute de la région prévertébrale) *Revue de Chir.* 1917 1: 640

The authors point out the difficulty of extracting projectiles from the upper part of the prevertebral region in the neighborhood of the base of the cranium. They have had to operate in six such cases, details of which they give. The diagnosis is made clinically and the localization is confirmed by a series of radiologic examinations.

The prevertebral region may be approached by these routes:

1. Pharyngeal route. The incision is made in the posterior wall of the pharynx. This route although apparently easy is not so. The depth of the region, anatomic difficulties and the difficulty of keeping the head in good position are opposing factors.

2. Cervical route. The incision is cervical on the anterior edge of the sternomastoid, similar to

that for ligation of the external carotid. The prevertebral region can be reached by passing inside the vessels and stripping the posterior pharyngeal wall. But the route is difficult and very dangerous owing to tearing of the peripharyngeal plexus. The authors think this route should be avoided.

3. Cervical route. This is especially the route of choice and it permits direct access to the prevertebral region by drawing the vessels and nerves forward. The incision starts from the posterior edge of the mastoid, follows the border of the sternomastoid until this muscle is crossed by the external jugular vein. It then ascends as far as the occipitals and sufficiently deep to allow section of the splenius. The splenius is sectioned at its insertion in the mastoid. This is important as the splenius is the key to the prevertebral region and if it is intact exploration is extremely difficult. The vessel and nerves with the internal jugular as adjacent nuclei are gently liberated and together with the sternomastoid are strongly retracted vertically by an assistant. When these preliminaries have been executed the surgeon can easily explore the prevertebral region with the right index finger. Adhesions can be separated with a sound. When the projectile is discovered it is extracted by forceps.

In their six cases the authors had only one operative accident, namely an injury to the internal jugular. Radiograms showing the position of the projectile are given for each case. W. A. BRENNAN

**Terry W. I. Operative Treatment of Goiter** *No. 1400 Med. 918 xvii 0*

It should be remembered that iodine should be cautiously used in the treatment of any goiter. Adenomas are not curable by medicine or by X-ray.

The treatment of exophthalmic goiter should be carried out by the physician and surgeon co-operating for the good of the patient. Medical treatment is seldom permanent and surgery is necessary to effect a cure. Each case should be studied individually and an operative time selected during a stage of comparative quiescence. The psychology of the patient should be analyzed and every effort made to eliminate fear. Ligation of one or more thyroid arteries is often advisable preceding resection.

The Kocher collar incision is used. The sternohyoid and sternothyroid muscle are separated longitudinally in small goiters and divided transversely high up in the large types. It is well to leave portions of both the inferior and superior pole so that the parathyroid will not be imperiled. The recurrent laryngeal nerve should be avoided by leaving the posterior sheath of the thyroid. Adenomas may be shelled out and all such tumors should be removed otherwise a recurrence is likely.

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C RL I St x

## SURGERY OF THE CHEST

### CHEST WALL AND BREAST

Lockwood A L nd N on J A Wa Surg y of  
the Chest F t W J o 8 5 45

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of the lung mediastinum and diaphragm is permitted. The two stage operation is only possible with this method of analgesia. Ether should never be used. Unless primary union is obtained the patient is worse off hence bold and thorough excision of the wound area is necessary.

After the track of the missile is excised gloves and instruments are changed and the skin again cleansed and fresh towels applied. When the position of the wound will permit resection of the fourth rib from the mid clavicular to the posterior axillary line furnishes the easiest access to the thorax. One must be careful not to increase shock by too powerful a retraction.

Mop out the chest check fresh bleeding and then look for laceration of the diaphragm. On the right side excise the track of the missile widely enough to expose the liver remove the missile if it is in the liver and cleanse out its track with a curette and a swab wrung dry out of saline and ether. If oozing occurs insert deep catgut sutures. The very low resistance of the hepatic tissues to infection makes it important to remove all sources of infection. Close the wound in the diaphragm but do not suture the diaphragm to the chest wall as advised by DePage. If other viscera of the abdomen are injured deal with these through an abdominal incision.

Now the lung held by a Collin forceps is brought into the opening and the missile or fragment of rib removed and the track in the lung closed using a non cutting blunt needle. Partial lobectomy may be necessary if there is extensive laceration. If an open bronchus is found it can be closed by crushing and ligation. Care should be taken to remove all blood clots pieces of cloth fragments of bone etc from the thoracic cavity. This can be done better by sponging than washing out first with saline then with warm ether swabs.

Always close the chest unless there is extensive gas gangrene of the lung. Do not waste time on the parietal pleura as it can be included in muscle sutures. The chest must be hermetically closed with the first layer of muscles or else pocketing will occur pleural effusion accumulate the incision will break down and the operation fail. Keep a thick sponge in the pleural wound during the entire operation except when the hands are actually in the chest. A 7 inch adhesive strip is of great aid in keeping on the dressing leaving the sound side free. Keep the patient semirecumbent inclined toward the injured side.

A two stage operation is indicated if the exit and entrance wounds are wide apart where gross lesion of the bone or extensive destruction of the tissues necessitate an extensive operation of both wounds. In such a case enter the chest through the wound giving freest access to the pleural cavity and to the part probably damaged. Operate as outlined above but leave the patient on the table surrounded by hot water bottles giving intravenous sodium bicarbonate or blood transfusion if required or

sodium bicarbonate and glucose 8 ounces per rectum. If the patient is restless give half an ampule of omnopon and then in one to two hours deal with the other side paravertebral anaesthesia is often unnecessary here only local sufficing. Bilateral lacerations of the diaphragm should be dealt with by a two stage method.

Injuries of the heart and pericardium are best dealt with by a parasternal flap of the fourth and fifth or the fifth and sixth costal cartilages depending on the probable site of the lesion. This route also gives free access to the pleural cavity. If the missile has passed through the pleural cavity and lodged in the mediastinum especially high up it is wise to enter the mediastinum through the sternum. Remove the missile cleanse the bed and track thoroughly and close the pleural opening to prevent any leakage from the mediastinum into the pleural cavity. It is hard to deal with the mediastinum through an ordinary costal incision.

Phrenic nerve injury is the cause of many early deaths on the battlefield.

Postoperative treatment requires frequent change of position but the injured side should be kept dependent. Give plenty of opiates also glucose and sodium carbonate 5 per cent of each. The patient should sip 8 ounces of a 2 per cent glucose solution every two hours. Aspiration is done a routine after eighteen hours and on the third day. Keep the patient in the open air as much as possible. Explore the chest often to prevent fluid from accumulating. No reliance is to be placed on physical examination only on the X ray and exploration.

Good team work between the surgeon the physician the X ray man and the anaesthetist is essential. D. N. EISENDRATH

#### Hutchinson W. The Treatment of Wounds of the Chest with Special Reference to Infected Hæmothorax. *Brit. M. J.* 1918 1 196

Four classes of chest wounds should be distinguished. They are

- 1 Non infected hæmothorax or pneumohæmothorax
- 2 Open pneumothorax
- 3 Infected hæmothorax
- 4 Foreign body in the lung or the pleural cavity

Treatment in simple non infected hæmothorax or hæmopneumothorax consists in merely aspirating the blood from the pleural cavity. This should be done if dullness extends more than two finger breadths. Of 450 cases in the author's series 368 were aspirated. A fair sized trocar is used after cocaine anaesthesia and a small knife slit in the skin. If there is a large amount of blood clot the author believes the chest should be opened the blood and clots aspirated and tight closure made with a final aspiration of retained air. If blood is allowed to remain a long time the lung becomes bound down by adhesions and a large proportion eventually becomes septic.





lung tissue is collapsed or gangrenous it may be excised by ligating it *en masse* with silk then dividing it distal to the ligature with actual cautery.

Concerning pleuritis pneumonia and bronchitis it is noted that they appear frequently after chest injury. Lung abscess and gangrene are rare. Extensive lacerations of the heart may occur. Wounds of the pericardium cause hemorrhage with accumulation of blood in the pericardial sac causing pressure on the heart and symptoms very like injury of the heart itself. Treatment consists in removal of the blood and ligation of the bleeding vessels. Pus in the pericardial sac requires ample drainage.

Injuries of the large vessels of the chest are practically always immediately fatal. Injuries of the thoracic duct often lead to fistula and chylothorax or chylothorax. Wound of the diaphragm are of interest in connection with associated injury of other organs. Violent compression of the thorax may produce hemorrhages from the small veins of the head and neck with ecchymoses into the conjunctiva and eardrum. Lodged bullets in the chest should not be removed unless they are superficial or are causing untoward symptoms by their presence. F. B. FREILICH

**Dobson J. F.** A Preliminary Note on the Treatment of Infected Hæmothorax. *B. & M. J.* 1918, 1, 148.

Dobson says resection of the rib, the evacuation of fluid and clots, the removal of foreign bodies when possible and immediate closure of the wound is ideal and is being more and more widely adopted at the casualty clearing stations, but is only applicable in the earliest stages of the infection. When symptoms recur the patients very rapidly become seriously ill. Those cases where infection has passed beyond the contents to the walls of the pleural cavity cannot be treated in this way.

Dobson uses a special silver cannula without a terminal aperture but twelve small lateral holes. The eighth rib is resected. Tuffier's rib spreader inserted, the pleural cavity wiped out, the foreign body removed and other complications dealt with. The cannula is then inserted through the third or fourth interspace about or external to the mammary line. The original incision is then closed around a tube long enough to reach into a bottle of antiseptic fluid and the cavity is then irrigated every two hours with Carrel-Dakin solution. The infection is quickly controlled, the lung expands well and the general condition improves rapidly.

Certainly at present the treatment of badly infected hæmothorax does not give good results. Many cases discharge for a long period and only heal after much filling in of the chest wall or after wide resection of the ribs. If the lung does not expand the author does not hesitate to reopen the wound, free the adherent lung and close the chest.

D. N. ISENDRATH

**Stoney R. A.** The Modern Treatment of Empyema by Antiseptics. *B. & M. J.* 1918, 1, 198.

Acute empyema is easily cured by simple surgical methods. Through neglect or inefficient surgical treatment the lung and diaphragm become covered by granulation tissue which by its further development into fibrous tissue renders the cavity non-collapseable and chronic empyema results. This condition is difficult or impossible to cure even by extensive Islander or Schede thoracoplasty.

Most if not all cases can be cured without resorting to such dangerous and mutilating operations because it is not necessary to obliterate the pleural space but merely to render its walls sterile and this is possible by frequent washings with hypochlorite solution. The treatment is not dangerous provided a free exit for the fluid is provided.

The earlier the treatment is instituted the sooner and more surely will a cure be obtained. The opening is most suitably made by removing one inch of the eighth rib in the scapular line. Three illustrative cases are reported. C. A. HEDBLOM

**Gatellier I.** Acute Mediastinal Emphysema of Traumatic Origin (l'empyème médiastinal aigu d'origine traumatique). *B. & M. J.* Soc. de la d. P. 1918, liv. 74.

Nine observed cases and 11 investigations on cadavers have given Gatellier the opportunity to study the technique, treatment and pathogenesis of mediastinal emphysema. In 200 wounds he has observed 5 cases of acute emphysema of the mediastinum.

The symptomatology of acute traumatic mediastinal emphysema differs from that of acute emphysema which is observed in children in the course of whooping cough and bronchopneumonia. Gatellier has never observed either obliteration of the intercostal spaces nor crepitation synchronous with cardiac systole in the precordial region. Considerable circulatory disturbance with cyanosis and intense dyspnea are the fundamental symptoms with the appearance of gaseous infiltration above the sternum.

A wound of the chest, intense dyspnea, disturbance of the venous neck and facial circulation and the finding of an elastic episternal notch cushion without cervicofacial emphysema are according to Gatellier the first symptoms which call for immediate surgical intervention.

In 5 experimental investigations of emphysema Gatellier made a direct insufflation of the mediastinum by the eighth intercostal space. He produced a mediastinal infiltration ascending toward the neck. In 5 other cases by producing a subcutaneous emphysema he was not able to produce infiltration of the mediastinum.

He propounds two different pathogenetic theories: (1) when pneumothorax is created in the course of an onset of cough the mediastinal pleural tear is enlarged and a valve is established which causes progressive inflation of the mediastinum or (2)



were of less than six weeks duration. Diagnosis of abscess was made in all cases within two weeks following operation. Pneumothorax treatment was begun from two weeks to two months following the time of diagnosis. Two to ten treatments were given at short intervals during a period of two weeks to two months. Six of the patients were cured and two died one from rupture of the abscess into the pleural cavity. The presence of pleural adhesions was probably the cause of the rupture.

Two chronic cases of one and two years duration respectively were also treated but without material benefit.

C. A. HEDBLOM

### Piery M. War Injuries of the Lung (Le poumon de guerre) *Pe g n de p il de guerre Par 1917 No 5*

Piery points out that whereas before the war surgeons approached the lung in a more or less timid fashion they have become bold and sure as a result of the recent experience gained by them in war surgery.

Practically all war wounds are caused by projectiles of one sort or another. Very few stab wounds are described up to date. These projectile wounds can best be considered under the following five heads:

1 Simple chest wounds with hæmopneuro-pneumonic symptoms

Complicated chest wounds

3 Etiological and pathological factors

4 Symptomatology of chest wounds

5 Treatment of chest wounds

Under the first head of simple chest wounds Piery says that the really striking thing is the fact that simple war wounds are practically always accompanied by a definite symptom complex the only variation being in the intensity and duration of the symptoms. This symptom complex he has called syndrome hæmopneuro-pneumonic because anatomically it is characterized by hæmothorax with an accompanying pneumonia.

There is first shock immediately followed by dyspnoea both of varying intensity and followed in turn by more or less inconstant hæmoptysis rarely profuse. The following day there appear physical signs that are quite striking in their constancy. Over the lower third of the lung posteriorly there is flatness, absence of voice sounds, absence of or diminished breath sounds from the middle third, dullness with normal or exaggerated voice and tubular or almost tubular breathing.

The roscopic examination shows a large dark shadow replacing the clear lung area ordinarily seen under normal circumstances which extends over the lower two thirds of the wounded lung. This shadow fades out gradually with no tendency to demarcation into two zones. This X-ray examination may also disclose a projectile.

Exploratory aspiration (indispensable in these cases) confirms the diagnosis. A cell count of aspiratory fluid shows (a) a gradually rising polymorphonuclear leucocytosis during the first five

or seven hours followed by (b) a drop in the number of leucocytes due to dilution of the blood and lasting four to thirty hours followed by (c) increase in leucocytosis but chiefly of the eosinophile and mononuclear variety. This last phase ushers in the absorption and lasts eight to twenty hours.

Hæmoptysis immediate delayed and secondary cough and dyspnoea require no special description. The elevation of temperature which occurs in these cases however merits special mention because it is one of the most characteristic symptoms. It begins within twelve to twenty-four hours and then after the third or fifth day maintains a height of about  $101.5$  to  $102.5$  F for about fifteen days. Defervescence occurs by lysis and is usually completed in about three weeks.

These cases may clear up completely the physical signs or remnants of them existing from three to five weeks if the patient is in good physical condition or the patient may pass into the more serious form with a marked elevation of temperature lasting from four to six weeks without any confirmatory evidence of empyema or other intercurrent affections. This fever is due to pneumonia. Piery insists that the symptoms are due to pneumonia even if the symptoms be lacking and physical signs not in evidence. Cases of this type will frequently drag along from six to eight weeks.

The significant fact is that both the mild and severe cases provided there are no complications always terminate favorably. Piery treated twenty-five patients with simple penetrating wounds with one hundred per cent of recoveries. This does not mean that there is complete *restitutio ad integrum* for about one third of these cases develop recurrent bronchitis and many of them have more or less persistent chest pains, dyspnoea on effort, dry cough and general irritability over quite a long period of time. In general however over fifty per cent of the cases lead active lives and are fit for army duty.

Under the head of complications of penetrating wounds of the lung may be considered immediate complications and remote complications. Immediate complications are fairly well known having been well described by the medical men at the front. The remote complications seen mostly by the personnel of the base interior hospitals have been less accurately described.

Of the immediate complications the three most important are (1) pneumothorax (2) secondarily infected hæmothorax (3) primary pyopneumothorax.

The less significant complications are accompanying abdominal wounds, abscess of the lung, abscess of the mediastinum, fracture and osteitis of the ribs.

Pneumothorax is extremely frequent occurring in about 47 per cent of the cases seen by Piery. The striking fact is how frequently partial pneumothorax occurs without playing any part whatsoever from the point of view of symptomatology. As a

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p l a t n

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a l l t t t r n d i a t e l A f t e r p p l c a  
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h o u l l b a n m n d t h g r e a t d n g e f p u l m o n a r y  
g t l t r y t m b a t t h i s i t h s u i t a b l e  
t g l p e a l d g i t h i s s e e m t o b e the m o s t  
t p r p t e e

The l l d n s e u t i e t e a t n e n t c o m p e s  
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h h l l b e l e u s e l l a t e

T r a t m e n t f c m p l e c t i o n s l m t d t t h  
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R e g a d n t h e n d c a t n r y p o p e a t t i s  
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m e a s u r e b m o l t e l i n o t h e w o r d e m u s t

bear in mind that surgery of the lung in spite of the remarkable recent advance is still surgery of a very grave sort. For this reason, Hery states that one has no right to assume that every foreign body in the lung must of necessity be extracted. Rather the needs of removal should be based on some complication referable directly to the foreign body. The most urgent indication is hemorrhage. Pulmonary abscess is another indication. Finally there is to be determined the important fact of whether a pneumonic process is dependent on the foreign body.

The best time to operate is in the so-called interval after the hamopleuropneumonia has abated. Hery says that the situation is very much the same as the one confronting the surgeon in cases of appendicitis: it is always desirable to operate in the interval if possible, but the surgeon should never hesitate to allow his hand to be forced by threatening symptoms. As a general rule, extraction of foreign bodies should be considered as an operation to be performed in interior hospitals rather than in the hospitals at the front.

Hery describes the technique of Marion de Maucclair of Villon and of Duval. Of these he selects that of Duval as the most suitable and characterizes it as harpooning the portion of the lung. In brief, the technique of Duval consists in resection of one rib, extensive retraction of the wound, evisceration of the lung, location of the projectile, removal of the projectile through an incision made into the lung if it is easily located and suture of the lung wound.

Hery closes his article with a discussion of the indirect injuries of the lung due to concussion. Unfortunately, however, aside from merely stating that these injuries do occur and that they are characterized chiefly by hemorrhage, he admits that

so far there has been no theory satisfactorily explaining these indirect injuries.

### PHARYNX AND ESOPHAGUS

Perkins C W. Diverticulum of the Esophagus and Pseudo Diverticulum of the Descending Colon. *Ho p Bill D pt Public Charit s N Y* 1911 1 98

Gastrointestinal roentgenology has brought to light pathological conditions of the alimentary tract formerly considered rare but now observed to be of comparatively frequent occurrence. Diverticula of the esophagus, non-ulcerative diverticula or hernia of the stomach and diverticulitis of the sigmoid are among such conditions.

The author has seen a diverticulum of the stomach holding at least a pint, diagnosed by roentgen ray and operated upon by Walther at the Hospital La Pitie Paris in 1914.

A case is reported of a patient aged forty-five with cough and bronchitis, good appetite but having gastric distress. There was a specific history with treatment. The Wassermann test was now negative. In 1908 following an attack of pneumonia she first noticed regurgitation of medicine and food which would occur sometimes ten hours after ingestion. She was treated for nervous dyspepsia and cardiac spasm.

Fluoroscopic and radioscopic examination in the vertical position showed a retention of four or five ounces of barium mixture. Only on changing to a recumbent position did it overflow and proceed down the esophagus into the stomach. The diverticulum was at the level of the sternoclavicular articulation. The patient refused to undergo a complete examination. The treatment is not recorded.

C A HEDBLOM

## SURGERY OF THE ABDOMEN

### ABDOMINAL WALL AND PERITONEUM

Chaher A and Glenard R. Penetrating Abdominal Wounds (Plaies pénétrantes de l'abdomen). *Rev d chir P* 9 7 lin 1 4

Of 1,500 important wounds observed in the authors' surgical ambulance, 39 were assured cases of abdominal perforating wounds, viz. 6 per cent. These 39 cases were distributed as follows: simple penetrating wounds, 4; univisceral penetrating wounds, 9; multivisceral penetrating wounds, 6.

The first part of the authors' study comprises the pathology, symptoms, diagnosis, complications and progress. The authors discuss all the symptoms but point out that there is no pathognomonic symptom of a penetrating abdominal wound. It is only the presence of several signs which transform probability into certainty, and if the surgeon awaits certainty he runs the risk of operating too late.

The authors had 19 deaths in the 39 cases treated. Of 11 medically treated there were 4 deaths. In these 4 cases an early operation was impossible owing to the patient's condition. Besides these 4 there were 7 abdominal wounds with certain penetration which were evacuated without surgical intervention. The cases treated surgically gave 15 deaths. The greatest mortality was in those treated by the Murphy operation. There were 14 such operations with 10 deaths, a mortality of 71 per cent. The authors give the statistics of several authors for this operation which show a mortality of 6.34 per cent.

For the purpose of comparison of intervention and abstention in abdominal wound, the authors give statistical tables of the results obtained by several reporters. The statistics of 9 abstentions show a mortality of 3 per cent. The statistics of 39 interventions give a mortality of 59.5 per cent.

Th l f e n e l l y f a v r f m m e d a t e i n t e r e n t

It h e e r p a n t i t e t n g a b d m n l u l t h o p r t i l f e c t e b e e a r l y I f p t e l p n t w t h t r t h u f t e r i j u r y t h e h a n c f e r v e m r t h l u l e l i n t h e t t h u r t h p e r t a l a p s i s I n t h e f r t h l u r s t h p a n e n b e t t e r

A l t e p a n t i m t e c t n t o l a t l u e A l s t e n t l l c a t e l h e r t h p a t i e n t c m e v l t a d s t i s y m p t o m s v l i c h g a n f t r a n f r t e e n g s g i c a l l y t h e a u t h i s i n s t h l i n d l e n g e o f t h M r p h t h l

T h p e r t a t t h e c e o f b l m l u l h u l d b e a l e p t n y h i h a l l s c f l e p l t n l a c m p l e p a i r f l l e i n s a p b l e I t h o u l d b d o n e b y a s k l l f u l e x p e r e n c e d g n v h l a s l t h n e c y q u m n t a t h d p a r t h t r e s t m t f t i m a l p t r a t g l e s o n m a b u m n e l p i l l i l y v t e m t e l t n p f t l t a b t e n t i t c d t i n s e t t i t S e s l l e p n d p e a l l y g d t p t t l r p l e u a t n f r m t l t t i t t

W A B N V

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I t i l l b e n e c a r y d u n t h e o p e t i o n t o

c o m b a t t h e a d d i t i n a l o p e r a t i e s h o c k b y c o n t i n u i n g t h e i n j e c t i o n a t i n t e r v a l s

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T h e c u l a t i o n i l l n e e d c a r e f u l v a t c h i n t h e a u t h r c n t u t h e c a p h o r a t e d o l a n d a d r e n a l i n j e c t i o n s a l t e n t e l y b u t t h e u s e o f m o r p h i n e i s c r i t i c a l t h e a u t h o r i n t c o n v i n c e d t h a t i t h m l

F o l d a l l d n k f r b a l l e n f o r t h e f r t t w e l v e h u s t h e n l y a p o n f u l o f m l k a n d w a t e r b n d y o r n e t l a t i g e n e v e y h o u r

I o o v c o m e b d m a l m e t e o r i s m e n a s o f e q u a l p a r t o f a r m w a t e r a n d g l y c e r i n e a e u s e d T h h u l d b e p e r o n a l l y a d m n i t e r e d b y t h e p h y s i c i a n i n t h e m a n n e r d e s c r i b e d b y t h e a u t h o r A t r e p u l n f i g a t h e i n t e t n e i s c l e a n s e d w i t h l t t e O t h r p o i n t s r e g a r d i n g d e t e c t e d t l e d

I n t u b d m n a l u n i s w h i c h h a v e b e e n o p e a t d u p i t h e a t h o r h a n e e o b s e r v e d r e c o v e r l y f r s t i n t e t H e t h k s t h a t t h i s i s e p h e d b y t h e f a c t t h t s e p t c m a t t e i c a r i e d b y t h e p o j e c t l e i t t h e n t r c a c i e s f t h e i t e s t i n a l o n l h i c h c n t m a t e s t h e w l l d u r i o p r t n W A B E A N

B l o d g o d J C S m e H n a T h a t D i s q u a l i f y f M i t r y S e W h e t h r O p e t e d u p n o N o t J r y M 4 9 8 1 5 5

T h e s m a l l g o u p o f h e m a s f w h i c h a t t h e p e e n t t m e p e a t i n s h a v e f a i l e d t o r e s l t i n c u e f r m o t 5 p e r c e n t o f c a s e s A m g 4 3 c e f g u n l h e n a t h s t y p e o c c u r r e d i n t a n a b u t 4 5 p e r c e n t A m o n g t h e s e c e t h e e e 6 e c c u e n c e s m o e t h a n 5 p e r c e n t m s e e k t s i x m o n t h s a f t e r o p e r a t i o n

T h t y p e f h e r n a c a n b e r e c o g n i z e d w h e n t h e p a t i e n t i s a m e n e d l y g f l a t o n h i s b a c k I f t h e f i n g e r p r e s s e d a g a i n s t t h e s t o m a n d p u s h e d u n t o t h e e t n a l i n g a s t h e i n d f i n g e r p r s t h s h t h e e t n a l i n g t h e h e r n a h a v i n b e e n r d u e d t h l a g e r u n b e r f c a s e s i t m e e t s a b t r u t i n ( t h e o n j n e d t n d o n ) a n l s d e f l e c t e d u p w a r d a n d a r d f l o w i n g t h e c o u e f t h e n g u a l c a n a l I n t h i s s m a l l e r g r o u p t h e i n d e f n e m e e t s n o o b t r u c t i o n b u t e n s a t o n e n t o t h e p e r t o n e a l c a v i t y a n d n s o m e c a s e s t h e o p n i n i s o l g e t h a t h n t h e n d e f i n g e r s l e e d i t c a n p a l p a t e t h e p u b i c b o n e i n t h e r e g i o n o f t h e y m p h y s

I n t h o c a s e s i n w h i c h t h i s e a m u n a t i n d e t e c t s t h e c o m p l e t e a b s e n c e f t h e c o n j o y n e d t d n t h e o d i n y o p a t o n f o r i n g u a l h e n a a c c o r d i n g t o B l d g o d s i n e t g a t i o u p t o 8 9 0 f a i l e d t o c u e i n b u t 5 0 p c e n t f t h e c a s e s L a t e r o b s e a t i o n o f t h e s e c a s e s h a v e s h o w n t h a t t h e p e

centage of recurrences has been reduced to about 15 or 20. It is the author's opinion that it is possible to select this group at the complete examination at the cantonment and these applicants or registrants should be rejected saving the government the expense incidental to the operation and later discharge for recurrent hernia. P. G. SAILLERN, Jr.

### GASTRO INTESTINAL TRACT

Herniman Johnson, F. The Value of Information Furnished by the Opaque Meal in Disorders of the Alimentary Tract. *Med Press* 1918 cv 101

This article is largely a refutation of certain statements made by Lewis in an article on "The Principles of Treatment in Indigestion" which appeared in the *Medical Press* on January 16, 1917. The fallacy of supposing that the inhibitory effect of the bismuth meal on peristalsis vitiates the findings in regard to the motility of the gastrointestinal tract as disclosed by the roentgen ray is especially emphasized. The author points out that for the same type of meal administered under standard conditions there is a normal rate of progress through the alimentary tract. Any marked deviation from that rate may serve as a basis for the determination of functional or organic disturbance. In addition, alterations of position or deformities of outline in the hollow viscera may be disclosed with the aid of the opaque meal and the roentgen examination, which are of greater importance than motility. ADOLPH HARTUNG.

William R. J. A Note upon a Helpful Diagnostic Sign in Ruptured Digestive Ulcers. *Brit. M. J.* 1918 i 142

Several years ago the author saw a patient who had had many sudden attacks of acute abdominal pain which passed off just as suddenly. At the time of admission the patient was suffering from acute general abdominal pain of several hours duration, this with the board-like rigidity of the abdominal wall indicated rupture of an intra-abdominal viscus. At operation a ruptured duodenal ulcer was found.

The feature of the case that impressed the author was the presence of a transverse ring of constriction across the abdomen at the level of the lower margins of the ribs and extending into the flanks on either side.

The constriction is usually present and does not always disappear with general anesthesia, although it does disappear when the condition has advanced to the stage of general abdominal distension. There is no marked hyperesthesia and the patient is quite unconscious of any feeling of tightness at the site of the constriction. It is not confined to spare or emaciated persons and is a different thing from the scaphoid abdomen seen in emaciation. The appearance is as if an invisible rope was constricting the abdomen. It may be that it is an

attempt of nature to limit the effects of the perforation to the upper portion of the general peritoneal cavity. The sign was present in the author's last two cases of ruptured ulcer. The ring of constriction corresponds to that portion of the abdominal wall supplied by the ninth intercostal nerve and is certainly due to muscular contraction.

The muscles involved are the two recti abdomini, external oblique, internal oblique and transversalis. V. C. HUNT.

Daignault, O. Gastropstosis and Ptosis of the Transverse Colon. *J. Lancet* 1918 xxxiii 75

Gastropstosis or ptosis of the stomach and ptosis of the transverse colon is a disease to which the general practitioner gives very little attention. The literature on the subject is very meager but most authors take it for granted that when one organ shows ptosis there is a general ptosis of all the abdominal organs. Daignault claims that one may have a ptosis of the transverse colon and stomach together without a general ptosis of the liver, spleen and kidneys.

The author gives a description of the anatomy of the supports of the stomach and states that Glenard, who was the first to give a good description of this affection, thought that the transverse colon was the starting point. He maintained that the transverse colon is fastened to the pyloric end of the stomach by a band or ligament that the accumulation of faeces in the transverse colon causes it to sag somewhat and this sagging of the transverse colon exercises traction on the pylorus thus causing the descent of the stomach.

The symptoms of the disease vary more or less. Ptosis may be present without many symptoms although most of the patients complain of pain in the epigastrium after eating, a dragging sensation in the abdomen and some backache. Most of them are nervous, neurasthenic and discontented, complaining a good deal of weakness, a tired feeling and constipation. These symptoms are very likely due to absorption from accumulation in the transverse colon. Hypoacidity usually exists. There is not much regurgitation of food or gases after meals.

He states that the diagnosis is usually difficult as the cases do not always present gastric symptoms but instead the patients complain of a good many troubles throughout the body. He suggests the X-ray as the best means of diagnosing these cases. The radiograph should be taken with the patient standing to show the position of the stomach and colon.

In the treatment of these cases most surgeons and medical men admit that suspension of either the stomach or colon shows good results only in a few select cases. The author states that these cases are best treated in a hospital. They should be put to bed with the foot of the bed elevated so that the organs have a chance to get into their normal position. They should never be allowed to sit up while under treatment except to be raised





prided. He wrote of (1) invagination of the death struggle in unimportant cadaveric incident (2) inflammatory invagination taking place with out exception from above downward.

Mackenzie suggests the following classification

1 Acute which may be divided into (a) simple which may be single or multiple (b) compound where the primary invagination was enveloped in a second passing in the reverse direction (c) complicated in which intussusception has been caused by a new growth.

2 Chronic Usually enterocæcal or enterocolic.

He quotes cases illustrating each variety. He mentions one case to show that the diagnosis of chronic intussusception is sometimes difficult. The patient complained of noises in his abdomen especially after meals for two or three weeks but had no pain constipation nausea or vomiting. Five weeks after the onset about one hour and a half after lunch a swelling was seen to form in the upper and inner part of the right iliac fossa. There was much visible peristalsis with borborygmi. X-ray plates were made which showed no evidence of organic obstruction. He was operated upon seventeen days later. A greatly distended and hypertrophied ileum was found. The ileocaecal angle including the cæcum and about seven inches of the ileum were resected and the appendix which contained a concretion at the tip was removed. The patient made an uninterrupted recovery.

The most interesting point of this case is that although the lumen was contracted practically the only symptom exhibited was the noise produced by the gurgling of the liquid and gaseous contents of the dilated small intestine through the narrow channel of the intussusception. C. W. HOCHSTETTER

Christopher F. Myoma of the Intestines. *N. Y. M. J.* 1908, cvii, 10.

The infrequent occurrence of myomata of the intestine and the important rôle which such tumors occasionally may assume seem to the author to warrant the reporting of this case.

The patient was a female married 8 years old. Physical examination was negative save for fixed pupils, impairment of the left apex, relaxed perineum and retroversion of a small uterus. The Wassermann reaction was positive. Urinalysis was negative.

An operation was performed for chronic appendicitis and for retroversion of the uterus. During the course of the operation a nodule 3 cm. in diameter was noticed attached by a pedicle 5 cm. long by 0.8 cm. in diameter to the anterior aspect of the sigmoid flexure. The nodule was a yellowish white and seemed to have a thick wall. The pathological report was degenerated myoma of the intestine. The capsule was thin but dense.

The section of the tumor showed it to be a myoma. The origin of these tumors is uncertain. Steiner who analyzed 51 cases of myomata of the intestine claims 41 per cent were attached to the stomach

and in 59 per cent they were equally divided between the large and the small intestine. The age varied from seventeen to eighty years and the size from one to forty centimeters, some weighed as much as seven kilograms. Not infrequently they are the cause of obstruction or intussusception.

E. C. ROBERTS.

Miller H. T. An Unusual Case of Malposition of the Appendix. *J. Am. M. Ass.* 1918, lxx, 23.

The author records the case of a four year old boy who appeared to be suffering from a typical attack of appendicitis. The child was removed to the hospital for immediate operation. Under anesthesia a mass at McBurney's point was readily discernible when the abdomen was opened. It proved to be the cæcum. Diligent search for the appendix failed to reveal any trace of this organ, furthermore the cæcum and ileum were smooth and free from any adhesions which might have buried an appendix.

Within the cæcum however a movable mass was palpable. This mass was apparently attached to the cæcum at a point corresponding to the usual location of the base of the appendix. Further abdominal exploration was negative. The wound was closed.

The patient was very ill until the fourth day when there appeared in the stool a thick purulent and very offensive discharge. After this the patient made an uneventful recovery except that on the tenth day a yellowish green slough was passed which the author took for the misplaced appendix. I. B. BITTMAN.

Jacobson I. H. Left Sided Appendicitis in Situs Inversus Viscerum Totalis. *Br. J. Obst. Gyn.* 1917, lxx, 253.

The author relates the particulars of a case of genuine left sided appendicitis associated with total transposition of the abdominal viscera in a young man of twenty four years. The patient had three days of acute abdominal pain with a history of similar previous attacks. During the physical examination it transpired that the patient had been told a number of years previous that his heart was on the right instead of the left side. The nature of the conditions had been more or less obscure but this information enabled a diagnosis of left sided appendicitis to be made after further examination had verified the truth of the statement.

Incision was made through the left rectus muscle. The appendix was found perforated and gangrenous hanging over into the pelvic cavity and attached to the left side of the pelvic wall. It was removed and a drain placed. Recovery was uneventful but three weeks later the patient developed severe abdominal pain again. The abdomen was opened and a dense obstruction found in the small intestine as a result of adhesions in the pelvic cavity. A lateral anastomosis was done but the patient died the following day.



ectopic spleen thrombosis of the splenic vessels and embolism

The pathology of total infarction of the spleen does not differ from infarction in any viscus that has a terminal blood supply. In each of the four cases reported the spleen was entirely necrotic resembling a bag filled with purulent material. In two of the four instances bacteria of a low virulence was isolated from this material.

In discussing splenic thrombosis one must consider the possibility of a relationship between this condition and the so called Banti's disease. Authorities differ on Banti's disease. Senator maintains that splenic anemia cannot be differentiated from Banti's disease during the first stage of the latter and Gilbert and Lereboullet after a thorough review of the subject decide that Banti's disease does not exist.

Nuzum summarizes his paper as follows:

1 Total infarction or necrosis of the spleen has been infrequently reported.

2 Total infarction of the spleen may result from an embolus or a thrombus in either the splenic artery or the splenic vein from the extension of a thrombus backward from the portal vein into the splenic vein from pressure on the splenic vessel by a neoplasm from torsion of the splenic vessels when the spleen is displaced or from an inflammatory process originating within the spleen and involving the terminal branches of the splenic artery and vein (Bonne's view).

3 Total infarction of the spleen gives rise to definite enlargement of the spleen pain and tenderness in the left hypochondrium fever and occasional vomiting of blood and from these a correct diagnosis may be made.

4 The treatment whether medical or surgical depends on many factors such as the condition of the patient and the underlying disease of which the splenic infarction may be either the chief expression or only a minor part.

G W HOCHREIN

Longcope W T Acute Tuberculosis Polycythemia with Enlarged Spleen. *Vaquez's Disease Med Clin N Am* 1917 1: 465

The case which was presented by Longcope was that of a man fifty five years of age whose chief symptoms were that of hemiplegia. On careful examination it was found that everywhere the skin was dark in color assuming a purplish blue this was particularly marked about the face neck ears hand and feet. There was associated with the above symptoms a dilatation of the deep and superficial veins. There was also evidence of circulatory disturbance as evidenced by clubbing of the fingers and toes and enlargement of the heart. The spleen also was found markedly enlarged.

The blood examination was as follows: hæmoglobin 130 per cent red cells 8 000 000 leucocytes 12 000 with 82 per cent polymorphonuclears.

It has been supposed that the condition had its origin primarily in the spleen but whether the

enlargement is primary or secondary or represents an accompanying condition cannot at the present time be determined. It seems probable from the work of Sampson that erythrocytes stored especially in the liver are suddenly expelled into the circulation.

There is no evidence that the polycythemia is in any way dependent upon lack of oxygen and the carrying capacity of the red cells. Butterfield has found the oxygen carrying capacity of the blood normal in Vaquez's disease.

The morbid anatomy of the fatal cases has shown quite regularly a marked hyperplasia of the bone marrow and an enlarged spleen which in a few cases has been the seat of tuberculosis.

The therapeutic measures which have been tried in these cases have proved more or less unsatisfactory. Ray extirpation of the spleen and bleeding are the measures employed for its relief. Bleeding seems to have been of some benefit.

M A BERNSTEIN

Fiolle J War Wounds of the Spleen (Les plaies de guerre de la rate). *Rev d chir* Par 1917 11: 679

Fiolle says that in the early stages of the war surgical treatment of wounds of the spleen was discouraging and led to the erroneous idea that little was to be gained from surgical intervention. Fiolle's present extensive summary of war surgery of the spleen is based on cases both personal and collected from the literature.

The size of the projectile injuring the spleen is of capital importance. The organ is friable and gorged with blood. Small projectiles may tunnel through it without causing any very serious damage but if the projectile is large the organ ruptures. In addition to direct wounds there are cases of rupture caused by projectiles which do not directly injure the spleen. Such may be due to violent muscular contraction or other disorganization produced by a large projectile striking in the vicinity of the spleen.

Splenic injuries may therefore be divided into (a) superficial furrows (b) punctiform wounds (c) tunnel wounds without rupture (d) rupture wounds which may divide the spleen into two or more parts (e) tears of the pedicle.

Splenic tissue has a marked tendency to infection which is frequently fatal.

The pleura is the organ most frequently and constantly injured with the spleen. In isolated splenic wounds there is no immediate symptom. The most usual symptoms are those of peritonitis and the symptoms which correspond to an internal hæmorrhage are frequently absent. It is difficult to explain why such large effusions of blood do not give clinical signs but such is the fact.

In splenic wounds complicated with thoracic or abdominal wounds it is even more difficult to find any symptoms referring to the spleen alone.

Although some rare case attest that splenic wounds may cure spontaneously yet if left untreated they nearly always prove fatal either from late hæmorrhage or infection.

The following points in the history are suggestive of the disease

Pain in the feet and legs not relieved by any orthopedic measures, complete sensation in the calf of the leg when walking forcing the patient to stop frequently, a tingling sensation in the toes, a burning sensation in the toes, feet colder than the rest of the body, history of frostbite and of migrating phlebitis.

The following signs are indicative of the disease: a dusky red color of the toe or an excessively pale appearance of the foot, a rapid bleeding when slightly elevated, an absence of pulsations in the dorsalis pedis or plantaris arteries of the foot. When the pulsations in one foot are not perceptible, they are weaker than in the other, arterial obliteration should be suspected and one should be highly cautious in the treatment of any complaint of the foot for which the patient may present himself.

Any surgical interference is contraindicated because of the certain harm done to the circulation by the trauma, the tissues and blood vessel, but instead, measures should be taken to improve the circulation, control of the limbs by the various means recommended.

The following conclusions are drawn: 1. Thrombogenic obstructions as a rule exist in the development and many suffer from it for years without developing gangrene, the extremely painful characteristic ulcerations.

2. The symptoms and signs of the disease are very often mistaken for some other minor surgical affection and surgical treatment is resorted to in order to relieve the patient.

3. The trauma to the tissues and the blood vessels still more interferes with the nutrition of the parts, ulcers are produced which are extremely painful and do not heal rapidly and often gangrene supervenes.

4. In any complaint of the foot one should always bear in mind the possibility of disease and the physician should go thoroughly into the history of the patient, describe carefully the circulation of the foot.

## FRACTURES AND DISLOCATIONS

Baker, H. T. Treatment of Compound Fractures of the Forearm. Surg. Phila. 98, 1, 79.

The author apparatus is also suitable for compound fractures and about the elbow joint. It consists of two parts: a metal cuff, all padded and strapped around the humerus, and a metal frame that holds the forearm. The frame made longer than the forearm so that the extension strap can be fastened to the forearm and to the straps fastened some rubber tubing fastened to the crossbar of the frame, thus permitting extension to be made upon the forearm if desired. A piece of cant flannel or mu lin can be folded over the length of the bar and pinned making a soft

hammock for the arm to rest in. If necessary for firm support, a well padded splint can be put in the hammock beneath the forearm.

The frame is made adjustable allowing elbow motion or fixation in flexion or extension so the wound can be reached for purpose of medication. By turning one of the cuffs that fits around the humerus and by turning one of the cross bars, the apparatus can be used on the opposite arm. The splint is light and can be made of either aluminum or iron. It is an ambulatory splint and the patient can be up and about without retarding his recovery.

P. G. SKILLERN, JR.

Vann, W. G. Greenstick Fractures of the Forearm. Correction of the Deformity by Continuous Extension. J. Am. M. A. 98, 1, 8.

The treatment of greenstick fractures of the forearm by continuous extension acted on suggested itself to the author at a meeting of the New York Surgical Society. Dr. Taylor described an elastic traction method of treating Volkmann's ischaemic contracture. Several months later the author applied this method to fractures of the forearm in children.

The child described was that of a child who fell three weeks previously and injured the left forearm. On examination a greenstick fracture of both bones was disclosed. There was considerable swelling. The callus was still soft so the muscles became partially straightened. This deformity continued as soon as the corrective force ceased.

Elaborate traction was then employed which consisted of the following: A padded wooden splint reaching from the elbow to the palm was applied to the forearm surface of the forearm and held in position by adhesive plaster strips. A fairly thick gauze padding and a half inch square and containing a bit of plint wood was placed over the metacarpometatarsal joint on the back of the forearm. A rubber band, eight to three inches in length was slipped over the hand and metacarpal joint and the middle of the center of the gauze padding was held in position by a strip of adhesive plaster. The rubber band was under moist heat and caused the interference of the ulnar nerve with that point. A greenstick fracture as applied to the bone but not completely from the plint to the elbow.

At the end of a week the swelling subsided to have a markedly decreased but the elbow joint had been allowed to touch the skin, each border of the forearm the skin had been partially withdrawn to each of these points.

It is advisable to make the plint on the concave surface somewhat wider than the metacarpal joint, a broad strip of adhesive plaster applied over the arm or the splint, the gauze padding which has been placed at the point of greatest convexity. The rubber band, the adhesive strips, the position by short intervals placed and as a temporary and permanent remedy.

The author has since applied this method in six cases with very satisfactory results. He claims an earlier convalescence and freedom from pain.

M A BERNSTEIN

**Lewis D. Separation of the Lower Epiphysis of the Femur with Anterior Displacement and Fractures.** *Surg Clin Chicago* 1917 1 1105

Lewis states that traumatic separation of the lower epiphysis of the femur is usually due to hyperflexion or hyperextension of the knee joint and is probably most frequently caused by torsion of the leg when the latter is extended. Montgomery recently reviewed the literature and reports 7 cases including two cases of Lewis.

It is interesting to note that in 18 cases the injury was caused by the leg being caught in a revolving wheel or in machinery. In 7 cases it was caused by direct violence. The youngest case reported was eighteen months the oldest twenty years.

Open reduction is the method of choice. The author believes that acute flexion may be tried but in his cases the fragments could not be reduced nor retained after reduction until the fracture was exposed. The epiphysis could be easily reduced after the knee was flexed when direction manipulation could be combined with acute flexion. Even after fixation with a Lane plate it seemed to be advisable to maintain some degree of flexion at the knee joint for there was a tendency for the fragment to be displaced somewhat when extension was attempted.

Of striking interest are the methods that have been used in the treatment of this condition. Amputation has been resorted to in 14 out of 27 cases. This was deemed advisable on account of the amount of damage to the knee joint during the injury. Resection of the knee was resorted to in cases where a proper alignment of the fractured ends could not be obtained by the open operation. Lewis believes that resection should be limited first to those cases in which the fragments cannot be brought into alignment by open operation and when the deformity and disability resulting from failure to reduce the displacement would be greater than that resulting from shortening of the extremity. Secondly the operation should also be limited to those cases in which the structures entering into the formation of the knee joint are so badly damaged that the results following reduction of the displacement would be nil.

The first case which Lewis presents was a girl who sustained a separation of the lower epiphysis by catching her heel in a revolving wheel of a bicycle. Several attempts were made to reduce the deformity with a resulting rotation of the lower fragment and flexion of thirty degrees. At a second operation the lower fragment was reduced and rotated. It was retained in position by a Lane plate. The patient made a recovery with one and one half inches of shortening. Lewis believes that

shortening will increase since the epiphysis has an influence on the growth of the leg.

The second case was that of a young man who half an hour prior to his admission was injured while riding a motorcycle. A T fracture of the lower end of the femur was found. The lower end of the shaft was displaced inferiorly and the condyles fairly widely separated by the line of fracture and displaced backward. No open operation was performed for a few days on account of an extreme abrasion. During this time traction was carried out. The operation which was performed later was done for a final correction of the deformity. This consisted in the introduction of a nail transversely through the condyles. The shaft was maintained in place by a Lane plate. The nail may have to be removed at some future time. Lewis states because they often work out to the skin.

In commenting on the introduction of nails into joint surfaces the author quotes Mann who says that nails and screws are tolerated in joint surfaces in the human as well as in experimental cases on animals with surprisingly little reaction.

M A BERNSTEIN

**Lane W A. The Treatment of Fractures in Warfare.** *Lancet* Lond 1918 cxiv 4

The author in this well illustrated article remarks that no surgical cases during the war have been so badly treated as simple fractures. This was due either to a lack of knowledge of the mechanics of fractures or imperfect technique. Lack of asepsis, improper strength of plates and screws, screws torn out because the gauge of drill and screws did not correspond and the splinting of bone fragments in poor position are some of the causes leading to such poor results.

He concludes as follows:

1 Only exceptionally should fragments be fixed by plates when the wounds are very foul.

2 If found necessary under such circumstances the screws should be inserted as far as possible away from the seat of the fracture.

3 Operative interference should be postponed until the wounds have healed and consequently the tissues are free of organisms.

4 If a septic focus is noted during operation a culture and vaccine should be obtained for use should infection ensue.

5 Should there be a suspicion of the presence of latent sepsis the Carrel method of irrigation should be employed. Otherwise the wound should be completely closed.

6 Under no consideration should any bone be removed. Accurate apposition can be obtained if the surgeon knows how to bring it about.

7 Fragments of bone and callus should be saved to fill in any interval in the shaft.

8 Much heavier steel plates are needed in the malunited fractures produced by projectiles than are usually employed in less comminuted fractures in civil life.

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septic solution if preferred after which it is good practice to spray the joint cavity with ether. As soon as there is apyrexia and the wound has taken on a red look irrigation is to be stopped and aseptic dry dressings applied every two or three days according to the amount of discharge the drains are removed.

The early removal of bullets shrapnel or shell bits from the joint is imperative. The technique of the operator is described.

Penetrating wounds of the knee with bone lesions are very serious on account of their evolution and this fact has led many surgeons to resort to amputation at once a practice which should be most strongly condemned. Simple arthrotomy is not enough as many times the epiphyses may be fissured. These fissures are the factors of osteomyelitis an important cause for amputation in injuries of the knee joint.

The proper treatment of these cases is typical subperiosteal resection if the amount of damage done is not so considerable as to require more than the excision of 10 cm. as otherwise the resulting shortening would leave a useless limb. When the damage to the bone is too considerable likewise that of the surrounding soft structures with lesions of the popliteal vessels amputation is the only recourse left to save the patient and in order to be as economical as possible always perform circular amputation as low down on the thigh as possible and never suture the stump.

Arthrotomy will not prevent the nefarious evolution of infection and osteomyelitis and in cases in which this operation has given good results the lesions were confined to the synovium and no damage done to the articular surfaces.

To derive the greatest amount of good from subperiosteal resection of the knee joint the time at which it is undertaken is of capital moment. If the operation is resorted to some time after the receipt of the injury between ten and twenty days or if the operation is done following a primary arthrotomy which unfortunately is not uncommonly the case it may be termed a late resection.

Defined as above late resection gives very bad results and is bound to give rise to disappointment and discredit this otherwise orthopedic and life saving operation which should be resorted to early during the first three or four days following the receipt of the injury. It is understood that the anatomic diagnosis has first been made by means of radiography.

EDWARD L. CORNELL

**Le Fur R. Osteosynthesis in War Surgery** (L'osteosynthese en chirurgie de guerre) Paris 1918 83 405

Le Fur reports 33 personal operations of osteosynthesis in war surgery the case histories of which are detailed and illustrated. Twelve of the cases concern the upper limb and 21 the lower limb.

Osteosynthesis is a method which appeals to the younger surgeons of the new war school rather than

the experienced men of the older types. But circumstances make the method particularly applicable to the traumatic fractures of war.

The operation is not a grave one. In Le Fur's operations 1 on the humerus 8 on the femur and 10 on the tibia at times carried out under conditions of severe infection he has not had a single death.

Osteosynthesis has a special indication in war wounds which as a general rule are infected. In such case union is liable to fail or if it does not it is at the cost of enormous callus and malformation. In some cases where all the usual methods have failed to obtain consolidation osteosynthesis has given excellent results.

The lapse of time between injury and osteosynthesis in the author's 33 cases varied from two days to thirteen months. 12 were done in a period less than two months 5 in from two to four months and 16 in from four to twelve months or over.

Le Fur discusses the indications for osteosynthesis in (a) pseudarthrosis with or without large loss of substance (b) according to the nature and progress of the fracture whether aseptic or infected.

In the technique the principal points are chloroform anesthesia the frequent incision of the existing wounds or scars the osseous extremities are often greatly displaced or united by a malformed callus or bridge of bone sometimes there is extensive periosteitis and instrumental removal of all pathologic tissues therefore calls for much patience and delicacy so as to free the bone ends in good condition treatment of the bone ends and especially of the medullary canal reduction coaptation and fixation of the fragments.

The author disagrees with Delbet who counsels the use of plates alone in fixing the fragments and condemns metallic sutures. Le Fur thinks the latter are well supported in an infected area while the plate is often badly tolerated. If the wire suture is placed in healthy bone it does not ordinarily cut it.

In many cases where plating failed Le Fur has found the wire suture gave good results. He has used plates in 19 cases and silver or bronze wire in 13. In the upper limb suture was done in 9 cases successfully and plating unsuccessfully 4 times. In the lower limb both plating and suture have equally given good results though plating gave a slower consolidation.

Le Fur gives details of the technique both for suture and plating.

After operation the limb is immobilized in plaster. With regard to removal of the plates Delbet thinks they should be allowed to remain from four to six weeks. Le Fur however thinks that from three to four weeks stay suffices especially if there is infection. If the limb is well immobilized nothing is to be feared. Sutures are better tolerated. In some cases they have been left three months or even indefinitely. The postoperative treatment consists of mechanotherapy physiotherapy and heliotherapy.

The final results obtained by Le Fur are as fol-



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W A B R N

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## ORTHOPEDICS IN GENERAL

Gillette A J and Chatterton C C The Orthopedic Treatment of Deformities Resulting from Incurable Paralysis *Minerva Medica* 1918 1

This article deals with various forms of paralysis which are often confused with anterior poliomyelitis. Progressive muscular paralysis is discussed in a broad general way and the suggestion is made that these cases are greatly benefited for years but never cured by applying braces and supports.

Hereditary ataxia or Friedreich's disease caused by sclerosis of the posterior and lateral columns of the cord and frequently accompanied by distortion of the feet, legs or back is often benefited by braces.

Cerebral paralysis of childhood (spastic paralysis) is very frequently confused with anterior poliomyelitis. Cerebral paralysis is always a spastic paralysis with increased reflex and usually affects the mentality while acute poliomyelitis is always a flaccid paralysis with diminished or absent reflexes and does not affect the mentality in any way.

In treating spastic paralysis the deformity must be overcome by tenotomies before braces are applied.

Pseudo rhabditic paralysis is frequently confused with anterior poliomyelitis. The one symptom which is always present in pseudo rhabditic paralysis is that the reflexes are practically normal and the child can with some effort move its extremities.

Scorbutic children have been mistaken for anterior poliomyelitis in the early painful stage. The normal reflexes, lack of atrophy and the spongy gums will differentiate. Volkmann's ischemic paralysis, Erb's paralysis and Charcot's joints are sometimes mistaken for anterior poliomyelitis. The localization history and course of the disease will usually be sufficient evidence to make a differentiation.

Charcot's joints are best treated by braces since excision is out of the question for the bones will not unite and amputation is useless as the inability to locomote is due to disease of the spinal cord.

R B CORFIELD

Gosman G H R Brief Studies in Flat Feet  
*Med Surgeon* 1918 11 56

The author believes

1 That subjectively symptomless flat foot in civil life quickly becomes a source of trouble and invariably gives acute symptoms under the burden of intensive training.

2 That any given case objectively showing a flat arch even though of the first degree should be rejected for enlistment unless all motions of the toes and ankles are free to the extreme degree.

3 That their system of recording the making of imprints by applying ordinary finger print ink to the sole after which the foot is placed upon paper laid on the floor and the man directed to stand squarely upon it indicate by comparison the degree of improvement in motility under muscular exercise properly conducted.

4 That their method employed since August 1917 in the treatment of flat foot is the plan best adapted to the needs of men in the army undergoing intensive military training.

5 That the non resistant exercise plan is most effective and shows results well calculated to make its adoption in military practice advisable.

The treatment recommended is as follows. The toe exercises are the first ones taken up. The man stands on a raised platform like a two inch plank. They are then directed to flex the toes to the extreme point of flexion with a hard pull of the flexors of the sole of the foot at the extreme point of flexion. This is followed by extension without effort. This exercise is repeated continuously for from five to ten minutes.

The second exercise is a continuation of this flexion of the toes on the sole of the foot bringing into action the tibialis anticus muscle. At the extreme point of inversion or adduction a strong hard pull is made then the foot is allowed without any muscular effort to resume its usual position.

At the beginning fifteen or twenty minutes are sufficient for the entire routine of exercise later a full half hour.

PHILIP LEWIN

## SURGERY OF THE SPINAL COLUMN AND CORD

Silva R H Two Cases of Spondylosis (Deux cas de spondylose) *J de radol Par* 1917 11 673

In the first case presented by the author the cervical region showed ossification of the prevertebral ligament especially about the fourth fifth and sixth cervical vertebra. There was no osseous rarefaction. In the dorsal region there was bony union of the masses of the first vertebra with osseous density the lesions predominating in the anterior part of the vertebra. The shoulder joints were normal. The hip joints showed deformity with ankylosis. The scapula showed enlargement of the transverse diameter. There was intense calcification of the tracheobronchial ganglia.

In the second case the cervical region showed ossification of the prevertebral ligament which was quite rigid. Osseous density about the spinous processes and ossification of their ligaments. Deformity of the glenoid cavities. Calcification of the tracheobronchial ganglia. The humeral head was normal in appearance.

It is known that spondylosis first described by Marie in 1898 and afterward studied by Leri is a disease characterized essentially from the clinical viewpoint by a more or less complete ankylosis of the vertebral column and the shoulder and hip joints. It has been ascribed to syphilis, tuberculosis or myositis ossificans. The author thinks that the

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## SURGERY OF THE NERVOUS SYSTEM

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C W HOCH e

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no movement at all is allowed for as Sir Robert Jones says the slightest stretching of a muscle on the point of recovery disables it again also prolonged stretching of a muscle causes prolongation.

The effect of intermittent stretching might be advantageous or the reverse according to the weight which is laid on particular events. On the one hand it forces lymph from the muscles and so presumably metabolic products and this one would expect to be advantageous. In denervated muscles connective tissue increases and part of the late contracture is attributed to the shrinking of the newly formed tissue. The connective tissue when first formed is soft and extensible and intermittent extension will elongate the developing fibers so that when they shrink there may be less tendency to contracture. On the other hand muscles after denervation rapidly lose weight and in this state cannot stand as great a strain as normally.

In an experiment on an animal it was shown that stretching the paralyzed muscle a great number of times to about the full normal extent did not appreciably affect the atrophy. The author has made observation on muscles in later stages of atrophy up to about three months and has seen no sign that they are injured by moderate intermittent tension or by the degree of strain exercised by antagonistic muscles provided this is not prolonged.

The author concludes from his observations that in the pre suture period fairly free extension and flexion movements are not likely to injure either

muscle or nerve but forcible movements are always to be avoided.

As regards stretching of a nerve by movement after nerve suture where the nerve is not shortened restricted movements can be made without injury. In experiments on animal it is shown that a considerable degree of movement does not prevent rapid regeneration in an unshortened nerve. In man the author concludes when the nerve is not shortened slight movements can be begun in a few weeks and rapidly increased in extent.

In the great majority of cases in man the nerve has to be shortened and until the ends become firmly joined a very slight movement may be sufficient to rupture the fibers at the junction and cause a more or less serious delay in regeneration. The greater the shortening of the nerve the greater the risk. It would probably be better to insert a piece of fresh nerve when much nerve has to be excised.

It is generally recognized that if a nerve has been severed the sooner it is sutured the better. The difficulty is in distinguishing between complete nerve compression which will recover without operation and nerve severance which requires operation. In simple compression new fibers are formed in the part of the nerve just below the point of injury long before there is any sign of recovery on stimulating muscle and motor points. If then this region could be stimulated without the stimulation spreading to the normal nerve it would give rise to sensation and compression would be diagnosed. V. C. HUNT

## MISCELLANEOUS

### CLINICAL ENTITIES—TUMORS ULCERS ABSCESSSES ETC

Bullock T. D. and Rohdenburg G. L. A Histological Study of Heterologous Tumor Grafts  
*J. Cancer Research* 9:18 11 31

While the death of some heteroplastic tumor grafts may perhaps be attributed to the action of lymphocyte and connective tissue there is no histological proof that it is always determined by these factors. Tumors elicit in foreign species a reaction of much the same character as that produced in homologous animals. Removal of the spleen has no influence upon the receptivity of an animal toward heteroplastic tumor grafts nor does splenectomy favor the growth of heteroplastic tumor grafts. One inoculation of a heterologous tumor does not always render an animal immune to the temporary growth of a subsequent heterologous graft.  
MAX KAHN

Lumiere A. The Laws of Cicatrization of Cutaneous Wounds (Le loi de la cicatrization des plaies cutanées) *Rev de chir* Par 1917 lui 656

Lumiere reviews the work of Carrel and other who studied the relation between the size of a

wound and its rate of cicatrization. Carrel found that cicatrization proceeded more rapidly at the beginning than at the end of the repair period that cicatrization was proportionate to the surface of the wound and that the process of contraction was the most important factor in the repair of a wound.

Such deduction have been translated into mathematical formulæ which the author gives and interprets.

The author has made a number of clinical observations and experiments in various hospital also experiments on dogs in an endeavor to verify the laws of cicatrization.

His findings differ from those of Carrel. For experimental non infected wounds frequently dried by the antiseptic method in a given animal species he deduces the following laws of cicatrization.

1 The rate of cicatrization of a wound is constant that is to say the wound cicatrizes as rapidly toward the end of the healing period as at the beginning.

2 The time necessary for cicatrization is proportional to the greatest diameter of the wound.

3 In healthy animals of the same age and in the same species the rate of healing is practically the same.  
W. A. BRENNAN

T ff T and Desm rres R A Note on the  
P ges of Cicatr t n of War Wounds J  
L p M f , 8 65

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f m a t h e m t a l f r e a s t s c l i n i c a l e v i d e n c e  
Th p l l e m t h e y b e l i e v e s c o n s t a n t a n d  
g l n d i f t b e c o m r r e g l a r t h d u e  
t n n t h a p e t m e t h d t h u s f u n h  
i g m f n t l f t h e c g e n t o t h e  
p a t t

The f e n t h t h e u l t o f o b s e r v t s  
o n a c n e g d t o t h s t e r l a t i o n o f t h e  
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The autho s p t o u t t h i c a t r i a t i o n r e s u l t  
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F r o t h e r e x p e m e n t s t h e t h o r s s u g g e t  
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s a r y f o r e p i d e r m i t n t e d p n t l e o u d  
a l w h n t h d e l a d t f t i a m e d

the epithelium found an accumulation of nutri  
tive substances and so to speak made up the lost  
time

Moreo er hen an nfection entirely or pa t lly  
stopped epidermization they observed that after  
the inf t n had disappeared the pr ges of ne  
epide m t o n s m u h m o e r a p d t h a n n o r m a l l y  
t e n p a s s e d t h e c a l c u l a t e d c u r v e T h e i n f e c t i o n  
a p p a r e n t l y l e f t i n t h e v o u n d t h e c h e m i c a l s u b  
s t a n c h c h t a t e a p l e m i z a t o n

The ten of the e phys cal or chemical  
act at g agents as indicated again by t o  
n a t m u c a l c l i n a l f c t s I n t r e a t i n g c a l p v o u n d  
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f o r m v m t h s t h e y a p p l y o v e r t h e e n t r e  
u f a c e o f t h e s t e r i l e w o u n d d e r m o e p d e m i c g r a f t s  
f o t a l n l A f t e r a p p a r e t l y t a k i n g t h e g r a f t s  
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o f t h p p h e y f t h e o u n d h i c h h t h e t o h a d  
n t p g e d t o k p l a c e a b u n d a n t l y a l m o t a  
h i e i t n e s a s m u c h b e f e

The auth r ble e t h t b y m a t h e m a t i c a l m e a s  
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R l m l J H The T e m n t f S u g i c a l  
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The rem d emplyed are ( ) adrenal n  
chlor de ( ) pituit in (3) blood t an fusion (4)  
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n d e i c a l n e a t h e i a s i c e t h b y b l o c k i n g  
e h a s a t n d n e y t o p r e t s h o c k

The author e p o t s a c a s e n w h i c h t h e r e v e r e  
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s u g i c a l i g n n a n c e i n t h e N w Y o r k M e d c a l  
J f M r h o a n d o o o

Sen ry n e r r t a t o n o f s u f f c e n t f o c e t o  
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2 Chldre d the aged a e e r y s u s c e p t i b l e t o  
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3 Hæmo rhage especially enous is the prin  
cipal cause of hock

4 There a e t v d i t n c t v a r i e t i e s o f s h o c k  
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w t h e t e m t

5 P t o n l a b s o r p t i o n o f s e p t c m a t e r i l  
c a u s e s d a t h t h r u g h s h o c k b e f o r e p e t o n i t i c a n  
d e v e l p

6 S u b n r m l t e m p e a t u e i r r e g u l a p u l e s p e r  
f i c a l p r a t n c o l d a n æ m i c e t r e m t e n s a n d  
c l a m p y p e s p r a t o n c o n t r a n d a t e o p e r a t i o n

7 The s e v e r i t y o f o p e r a t e s h o c k d e p e n d s o n  
t h e l e n g t h o f o p a t i o n a n d t h e d e g r e e f n æ s t h e

H J V D B R G

**Gatellier** A Study of Shock in the Severely Wounded (Contribution à l'étude du shock chez les grands blessés dans une ambulance de l'avant) *Bull et mém Soc de chir de Par* 1918 xli 11

In Gatellier's ambulance service 666 wounded have been observed since May 1915. He has therefore had abundant opportunity to observe cases of shock. He divides shock into the nervous, hemorrhagic, toxic and septic varieties. The so-called pseudo-shocked cases due to exhaustion and cold are not included.

In hemorrhagic shock, no matter how desperate the condition, immediate operation is indicated. In 112 severe cases Gatellier operated in 193. The 9 others died before operation. Of the 103 operated cases 96 recovered, 7 died. All were ligated. This is to say, ligation in full shock has given Gatellier 93 per cent recovery. Lither is used as the anesthetic and at the moment of ligating an assistant injects 500 ccm of adrenalized salt solution intravenously.

Gatellier distinguishes toxic shock from hemorrhagic and nervous shock. When such is found it is generally in cases of large open muscular ruptures in the buttock or thigh regions with fractures of the femur, etc. the muscles are discolored and cold. There is a sort of stupor or death of the muscles. Gatellier thinks that the hamostatic band aids in bringing about this condition of shock if left too long. He is of the opinion that shock in such cases is due to an intoxication aggravated by delay. Hence he favors immediate surgery. He either amputates at once or does a large myectomy. It is followed by injections of ether serum, etc. Thirteen cases have been so treated and all have recovered. The removal of the source of toxin relieves the shock.

This immediate operative treatment of shock at least of certain cases would have previously appeared revolutionary or may even yet be so considered by many. Early operation under the conditions stated is advocated by the author to be the essential treatment of shock and like all other war surgery is a matter of military organization.

W. A. BRENNAN

**Timme** W. A Case of Pluriglandular Disturbance. *Organotherapy Cure Arch. Pediat.* 1917 xxiv 901

The case of a boy is reported. His weight at birth was 5½ pounds at the end of his first year 3 pounds. Dentition was normal. Measles and pertussis occurred at 3 and 6½ years of age. Tonillectomy was done two years before he was seen. Both testicles were undescended until 1½ years previous but at examination they were in the inguinal canal.

The father had psychosis probably of a dementia precox character and also had a tendency to acromegaly. The grandmother had a mild case of hypothyroidism as did one maternal uncle.

The Wassermann test proved negative. The boy's condition gradually became worse. He lost

weight, his fatigue became extreme, the fingers became purplish and swollen at times and the pulse increased. In July 1915 numbness in the extremities developed with increasingly painful paroxysms especially at night. At these times paroxysms also supervened and sleep was almost impossible. On hot days the extremities were better.

When examined in December 1915 the boy was seven and one half years of age, poorly nourished, pale and anemic. His posture and gait were normal. Height was 46¾ inches and weight 4¼ pounds. There was a generalized weakness of the entire musculature but no atrophy, no tremor and no incoordination. Blood pressure was 80 systolic and 45 diastolic. Pulse was 85 while at rest. The heart was normal though its musculature seemed weak. There was a vasomotor paresis.

The boy lacked self control and was pugnacious and resentful. He was not amenable to discipline and was impatient of his mother's criticisms, answering back with lowering brow and patent enmity. He took an interminable time to dress and undress for the examination and no amount of persuasion could change this. He lacked initiative and was becoming continually more dull and sluggish.

The radiograph showed a lack of development of the bony structures and an X-ray of the skull showed a much contracted elliptical but with clear sinuses. The hair was lustreless and brittle.

Pituitary medication was begun December 14, 1915, in the form of whole gland capsules twice a day. Three drops of adrenalin in salt solution were given by mouth three times daily after meals.

By January 18, 1916, he had improved mentally. His stature had increased one fourth of an inch. His weight was 43 pounds. As his weight gradually increased it was thought wise to begin with small doses of thyroid as this gland was second only to the pituitary in its deficiency. The adrenalin was stopped and thyroid given twice a day as ordered.

On October 21, 1916, his weight was 47 pounds, height 48¾ inches, a gain of ½ inch in height in nine months. Both testicles were well descended into the scrotal sac. The hair was glossy and smooth, the extremities in perfectly normal condition. His mental condition was excellent and undergoing the usual transitional period of childhood antics and silly behavior with a sunny disposition.

Examination on June 3, 1917, preparatory to going to a boy's camp for the summer, showed his weight 51¼ pounds and height over 50 inches. The general condition of the body and organs was excellent. His mentality was also excellent. He was discharged as cured. EDWARD I. CORFELL.

**Koch** W. F. Tetany and the Parathyroid Glands. *Id. & Surg.* 1918 ii 9.

The author believes that the calcium deficiency has little to do with the essential etiology of parathyroid tetany, thus contradicting the findings of MacCallum, Voegtlin, Lambert and Vogel. Koch



in other pathologic processes endothelial cells divided became free and migrated through the vessel wall into the extravascular tissue. This was seen in single oil immersion field of tissue that were perfectly preserved. These free mononuclear leucocytes of endothelial origin were frequently phagocytic for other tissue cell red blood corpuscles certain bacteria and for various non bacterial particles such as carbon. The mononuclear cells of the blood shown by these experiments to be phagocytic for carbon corresponded in morphology and phagocytic properties to the endothelial leucocytes of the tissues and it seemed to the author likely that this class of leucocytes might prove to be of endothelial origin. That they are not related to the polymorphonuclear leucocytes he states was clearly shown by their phagocytic properties.

In order to determine the behavior of tissue cells during life certain coal tar and natural dyes were injected into animals intravenously and by other routes and the tissues examined after a varying number of hours and days. Vitrally stained cells were said not to be present in the peripheral blood of the animal treated in this way but granules of the stain were present in tissue cell spoken of as macrophages which is a term implying that the cells containing the granules were capable of phagocytosis. The term phagocytosis McJunkin states is not correctly applied to the passage of a substance in solution into the protoplasm of a living cell although it is there changed over into insoluble granules. He does not consider it possible to say whether all phagocytic cells are vitally staining or not but certainly intravital staining as commonly carried out is useless for the demonstration of phagocytic cell in the blood.

Since none of the small mononuclear cells that were typical lymphocytes ingested the carbon it was evident to the author that lymphocytes and phagocytic mononuclear cells were comprised in the mononuclear group of leucocytes. He believes that all of the phagocytic cells owing to their resemblance to large lymphocytes especially cannot be accurately identified by means of any of the blood stains now in common use without the employment of a reaction to determine their phagocytic properties.

GEORGE E. BEILBY

Meleney, F. L. A Study of Ante Operative and Postoperative Blood Counts in Non Infective Surgical Conditions. *Ann Surg Phila* 1918 ix 11 129

With the purpose of finding out the extent of postoperative leucocytosis in man and also arriving if possible at some conclusions regarding the prime factors in its production 51 cases were studied in the wards of the Presbyterian Hospital. These cases were chosen at random the only cases not accepted in the series being those in which an acute infection was present before operation or a marked infection expected after it.

An ante operative count was made on the afternoon before the morning operation in only a very few cases count was made just before operation. A second count was made on the afternoon of the day of operation approximately six hours after operation. Another count was made every afternoon following until it returned either to normal or to the initial count. In making averages those cases which fell to normal before the twelfth day were considered to maintain their final count until that day.

The findings were as follows:

In surgical cases undergoing operation without infection the white cells increase in number and about six hours after operation have more than doubled.

The response is due almost entirely to the outpouring of polymorphonuclear cells.

There is a trivial rise in red cells after operation but in the subsequent ten days this is followed by a progressive anemia with an average loss of about one half million cells per cmm.

The white cell count may be expected to fall rapidly in clean cases and reach normal on the fourth day. In infected or contaminated cases it will fall much more slowly.

Infection and contamination have nothing to do with the initial rise but on the second or third day after operation they will tend to keep the count high.

Other things being equal the count will be higher in those cases in which there is severe trauma to the tissues many sutures and ligatures used considerable loss of blood and long anesthesia especially with ether.

Normal individual will produce a higher leucocytosis than abnormal types.

EDWARD L. CORNELL

Propping, C. Gangrene Due to Ligation of Important Arteries. *Wieschen med Wochenschr* 191 No 8

The author points out that in 1916 Sehrtr recommended that in ligating an important artery ligation of the corresponding vein should be done. Sehrtr explained that the capillary supply in the region may be insufficient owing to a too rapid venous reflux and the nutrition of the region may suffer giving rise to gangrene. The cause of such a gangrene is not due to a want of collateral circulation but is the result of a disproportion between the collateral arterial flow and the venous reflux which causes a disturbance in the equilibrium of these two factors.

Gangrene of a limb is more frequent after ligation of the artery alone. Sehrtr found that in the lower limb there was gangrene after ligation of an artery alone in 20 per cent of the cases but after simultaneous ligation of the artery and corresponding vein there was gangrene in only 9 per cent of the cases. In the upper limb after ligation of the artery gangrene occurred in 8 per cent of cases but there was



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## BLOOD AND LYMPH VESSELS

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n a t u r e m a y b e i m m e d i a t e o p e r a t i o n j u s t i f i e d  
D e l a y s h o u l d b e c o n d e l o n l i n s u c h s p e c i a l

cases as true aneurisms of small volume not infected and not involving neighboring nerve trunks.

Operation in the majority of cases will consist in ligaturing in healthy tissue above and below the injured segment of the vessel with or without excision of the segment itself.

The ideal treatment viz. repair of the vascular lesion with immediate reconstruction of the vessel lumen cannot be realized since it calls for special conditions of repair but this can be effected in a secondary operation for arterial or arteriovenous aneurisms.

In particular cases and with suitable conditions the author recommends the temporary intubation of the injured artery with paraffinated silver tubes according to Tuiher's technique. This procedure avoids the sudden arrest of the circulation and favors dilatation of the collateral vessel. The author thinks that the success of this method merit its trial in recent injuries of the limb vessel especially if associated with fracture or multiple wounds in order to avoid the danger of gangrene.

The author has never used the compressive tampon to secure haemostasis nor has he found that this was effective in those cases coming to him in which it had been done.

W. A. BRENNAN

### POISONS

Hopkins J. G. and Parker J. T. The Effect of Injections of Hemolytic Streptococci on Susceptible and Insusceptible Animals. *Exp Med* 1938 xii

The observations recorded in this paper were made in the course of a study of streptococcus infection and immunity. In order to study the problem of the immunization of animal against streptococcus infection it was necessary first to obtain as clear a picture as possible of the course of the infection in untreated animal. It has been noted by other workers and borne out by the present investigations that bacteria introduced into the circulation of the living animals quickly disappeared. It was the authors first task to study this phenomenon and if possible to find some means of explaining it.

They found that with hemolytic streptococci which were of rather low virulence for rabbits a sublethal dose completely disappeared from the blood stream within a few hours. When a lethal injection was given over 90 per cent of the cocci were removed from the circulation within the first few minutes and subsequent blood culture reached a minimum in two to three hours but after four to six hours the number again began to increase. Even with lethal dose culture of 1 ccm of blood showed no colonies after two or three hours but as a rule streptococci did not completely disappear after such an injection.

As an example of complete removal a rabbit was injected with 5 ccm of a heavy suspension of streptococcus 43. Cultures taken immediately

showed several thousand organisms per 1 ccm of blood. After ten minutes five drops of blood showed only 23 and after thirty minutes 5 after one hour two hours four and one half hours eleven and one half hours and twenty six hours 1061 and 118 organisms respectively.

The blood cultures subsequent to those recorded in the experiment were consistently positive until the death of the animal on the fourth day. The prompt and almost invariable removal of organisms artificially introduced into the circulation was difficult to harmonize with the fact that in susceptible animal the organisms again appeared in the blood within four to twelve hours and were found constantly in the circulation until death as in cases of spontaneous septicemia.

The author advance four hypotheses which they believe might account for this first that after a period the blood sterilizing mechanism became exhausted and permitted bacteria to remain in the circulation second that the bacteria after a brief stay within the body became resistant to its defensive powers third that the injection of foreign protein stimulated some reaction such as a mobilization of antibodies or of phagocytes which would account for the prompt and extensive preliminary removal of the bacteria fourth that the bacteria did not multiply in the circulation but were continually introduced from infected tissues faster than they could be removed.

Then follows a series of experiment to confirm or disprove the various hypotheses. As a result of these experiment the author draw the following conclusions.

Streptococci injected into the circulation of cats were quickly withdrawn and were found most numerous in the lungs less numerous in the liver and spleen and in small numbers in the bone marrow lymph nodes muscle and kidney.

The streptococci taken up by the lung were killed within five to seven hours although they remained visible in films for a number of days. In the liver they were killed less rapidly and in the spleen a few remained viable for a considerable period.

This bactericidal action was demonstrated in pieces of excised lung but not in lung extracts and was apparently dependent on the action of the living cell.

Streptococci injected into a susceptible animal the rabbit were also promptly removed from the circulation but were distributed in different proportion the liver and spleen absorbing almost as many as the lung and the muscles also taking up an appreciable number.

As in the cat the organisms taken up by the lung and liver of the living rabbit were promptly killed. Those which lodged in the muscles however multiplied rapidly.

About the time that the streptococci began to develop in the muscles four to eight hours after injection the number in the blood stream began to increase.

The necrosis in the blood stream was not due to exhaustion of the mechanism of their removal nor had these organisms acquired a resistance sufficient to maintain them in the blood stream of a normal animal. The septicæmia then the authors believe to be a probable result of washing out of organisms from the infected tissues.

Attempts to immunize rabbits were unsuccessful but in certain treated animals the distribution of the organisms among the various organs approached that found in unoperated ble normal cats.

G O E E B E L A

## EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Ded C Studie n th Transpl ntati n of Wlo O g n Autotr n pl nt of th Left Kidney to the Neck ith R gl t Neph ectomy in the Dog f 4 M t 9 8 1 6

The autologist's observation from experiment on dog in which the left kidney was transplanted to the neck with a right nephrectomy later. The conclusions are as follows:

1. It is possible for a dog to remain alive and in good health more than four months after the transplantation of one kidney to the neck when the remaining kidney is removed two weeks after the transplantation.

2. After the transplantation of a kidney, with its ureter the ureter may be seen to move when contraction of the excised ureter.

3. The ureter in a renal transplant may have the power to squirt the urine away from the animal by peristaltic contraction.

4. Phrenic laryngeal plexus may return four minutes from transplanted kidney.

5. Myoblasts from the second cervical nerve may within a few days become intimately incorporated in the perineal tissue of cervical anal transplant.

6. The quantity of urine from a cervical renal transplant markedly increased after the removal of the other kidney.

7. The neck is a favorable site for the operation of an experimentally transplanted kidney and its excision.

C A B R

## ROENTGENOLOGY

Silnton E W H \ Ray Local z tion L c t L d 9 8

Where time permits and photography is desirable the method described by the author has in its favor accuracy, rapidity and simplicity. He has used it since 1905 for all kinds of localization including minute fragments in the eye. The apparatus needed is two empty plate boxes, a sheet of paper and a pencil.

On the top and bottom of the two empty plate boxes is placed a plate film side down in a light proof wrapper. The two plates are thus separated by the two boxes, the films downward and the whole held together by elastic band. The measurement of one film surface to the other is taken and held for all future work as well. A special holder separating the plates 5 or 10 cm may be used.

The plate with the box between are placed over the foreign body. The lowest plate with film side down and touches the skin. This position presupposes that the tube is below the table. The first exposure is made with the tube a little to one side of the object and a second exposure without moving the plate is made after moving the tube somewhat to the opposite side. Thus when the plate are developed each plate will show two images. Those on the plate touching the skin will be closer than those on the plate separated by the tube.

Erect a perpendicular to the edge of a sheet of paper separated by the measured distance between the two plates. On one perpendicular mark a point from the edge of the paper equal to the distance between the two images on the second plate. The distances between the images must be measured from similar point on each. Draw a line to the edge of the paper passing through the point on each perpendicular. The distance between the perpendiculars which represent the film touching the skin and the point where the oblique line reaches the edge of the paper is the depth of the object. C B H 16

## MILITARY SURGERY

\ r — R d r s i d t th T b l f C t e t f th t l d l th m l t y u g r y h h p p e n d t h r u h d g d g t t m l e m t

Ha n H H Syphils and ti War t J S p h i 9 8 44

Increase of syphilis during the war, among soldiers and civilians, an established fact. The method of controlling the disease according to a reliable statistic has been successfully developed in the United States than in the large

countries. A special committee appointed for developing more successful treatment devised

1. Complete case record  
Earl diagnosis clinical microscopic and serologic

3. Calmette treatment of chancre in preference to excision

4 Salvarsan and mercurial treatment both strongly pushed Monthly Wassermann tests to control the dosage

5 In late cases without serious lesions mercury and potassium iodide until symptoms subside preferably until the Wassermann test is negative

Special prophylactic and hygienic measures are recommended also examinations of all men before discharge from the army and compulsory treatment of all cases Western Australia has enforced stringent laws with success LISTER TUNOLSKÉ

**Campbell J** The Treatment in the Field of Uncontrollable Hæmorrhage in Gunshot Wound *Lancet* Lond 1918 cxiv 295

Open gunshot wounds of the neck involving the large vessels are usually immediately fatal on the battlefield Even those that do come under the care of the medical officer usually die because of the inadequacy of the customary methods of packing or digital pressure Conversion of an open bleeding wound into a closed one by skin and fascial suture or by artery forceps stops bleeding by tension from resulting hæmatoma

A case is cited of a shell fragment tear three eighths of an inch long in the common carotid and involving half its circumference in which bleeding was effectually controlled by two Spencer Wells forceps C A HEDBLÖM

**Billot G** The First Line Dressing Station and the First Dressing *N 1 M J* 19 8 cvii 313

The objects of the first dressing are control of pain hæmorrhage and infection The first dressing acts as an anodyne All wounds should be treated on the supposition that they are already infected as a preventive treatment of gangrene and infections The means of controlling hæmorrhage are the tourniquet compression and ligature Ligature and compression are the better methods to be employed

For control of infection alcohol and iodine have not been successful because of the coagulating action on albuminoids Dakin's solution has proven most satisfactory

At the first dressing the wound is cleansed with 14 per cent salt solution and a light gauze dressing applied which is impregnated with Dakin's solution this is covered with a thin layer of non absorbent cotton Fresh solution is introduced at two hour intervals It is essential that all parts of the wound should be in contact with the solution so that all infected closed cavities should be opened and that the action of the medicament should be continuous Antitetanic serum should be a routine measure I E BISHOP

**Gullot M** and **Woinant H** Closure of War Wounds in the Base Hospitals (*Fermeture des fractures de guerre dans les formations de l'arrière*) *J de chir* Par 1918 xiv 217

The application of the Carrel method for sterilization and closure of fresh wounds is well known

but its extension to case of old fractures or those with established fistulae is less known The authors have carried out this procedure since September 1916 and now report on the first 50 cases so treated One of the greatest advantages of this treatment is that it affords a means of obviating bony fistulae This is especially important as 50 per cent of thigh fracture cases according to the authors which do not die or are not amputated remain fistulous after twelve months of treatment

The technique followed by the authors consists in (a) primary disinfection by the Carrel Dakin method (b) operative treatment (c) sterilization of the area (d) closure

In the course of disinfection a rise in the bacteriologic curve indicates the existence of some bacterial focus in the wound It may be necrotic tendon aponeurosis osteitis sequestrum debris etc but whatever it is must be removed surgically The surgical treatment of the flat bones or of the epiphyses of the long bones does not offer any difficulty but fractures of the long bones do It is not enough to remove sequestra nor to curette osteitic areas The authors think it necessary to deal in order with the following (1) incision (2) the periosteal callus (3) the sequestra (4) bone fragments etc (5) the bone extremities

All the serious complications which the authors have observed after intervention on infected fractures are connected with the persistence of the opening of one or both medullary canal The operation activates the bacteria and gives them an area in which they can multiply It is usual to find that an open bone extremity gives rise to an intense reaction if the cavity of the non-obturated medullary canal has not been largely exposed to irrigation of the antiseptic When certain precautions are observed however osseous non-obturated extremities if opened surgically do not give rise to any reaction

The authors therefore have certain rules for the treatment of osseous extremities These are

1 Obturating medullary plugs should be superficially abraded by the curette so as to assure no communication with the medullary canal nor any included sequestra If the surface thus explored is healthy the obturation will be respected

2 Medullary canals remaining open should be cleared by the gouge so as to give easy access to irrigating drains

After sterilization closure does not usually present any difficulties When it is impossible to close with out filling an old bone cavity the authors prefer to use a fat graft but this must be reserved for cases in which the production of periosteal callus is advanced else there is a likelihood of a pseudarthrosis

The results of 50 treatments of old fractures since September 1916 gave 5 closures 23 cicatrized spontaneously and 2 after closure have developed a fistula These fractures included 11 humeral and 6 tibial fractures and the time between injury and beginning of treatment varied from two days to

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repeatedly used as long as there are patients who require them.

Although of course the paramount consideration is the physical restoration of our citizen soldiery nevertheless the present exigency will in time cease and then unnecessary duplication of construction and equipment will result in a tremendous waste. When the period of readjustment comes the financial situation will be an important factor in the welfare of the citizen.

The product of the medical schools must be finished by education in hospital as in such manner only can surgeons be trained. England realizes the mistake of sending embryo doctors without hospital experience into her military hospital. By sending the returned soldiers to existing hospitals it is possible for them to be taken care of by the men who were by reason of injury or other conditions unable to engage in foreign service and at the same time allow the men to carry on the work of educating a new supply of physician. The army requires such a large number of trained nurses that training school dare not be interfered with and physician and leading nurses are necessary for this.

Plans have been considered for reconstruction hospital mainly orthopedic. The result would be a number of special hospital with duplication of buildings, equipment, personnel, etc. Machinery would be costly and the opportunity for its use short while the same installation in an established hospital could be continued in use for civilian purposes long after the need for military use had appeared.

The chief objections raised to the use of the civilian hospitals have been that there would be a loss of military discipline and control. The former can be easily overcome by segregating all military patients and continuing all disciplinary measures. The second can be met by having provisions for keeping record for military inspection, etc.

The author would establish military zones consisting of one or a group of hospitals. To each zone would be sent military officers and men as needed to take care of the patients. The hospital would have to conform to certain requirements including compensation, necessary bed space and construction of additional wards if necessary.

R. B. BETTMAN

# Owen W. O. The Proper Organization of the Medical Profession of the Nation at War. *South M. J.* 1917, 1, 926

The author outlines a plan for the organization of the medical profession as a whole in order to intelligently select the best men to care for the army in such a manner that the civilian population will not be neglected. In addition he describes the difference between civil and military practice and indicate the relationship of the military medical officer to his men to his superior officers and to his co-workers and ends with a plea for the assumption of medical and surgical superiority of the world by America's medical profession. H. H. FREILICH

# Poate H. R. G. Re Education of the Disabled Soldier. *M. & J. Austral.* 918, 1

This article is a review of reconstruction work as done in England and France with suggestions as to the best manner of providing for the disabled soldiers in Australia.

There is a great need for orthopedic centers in the capital cities of each State. All men who can be benefited by treatment as carried out in the French centers of physiotherapy should be transferred to these hospitals and kept until all has been done for them that is humanly possible.

In close association with these hospitals should be a series of workshops where men can attend and learn a trade.

The establishment of centers of surgical equipment for the manufacture and repair of artificial limbs and all orthopedic appliances should be necessary and would provide a training ground for many men.

Special instruction should be provided for advanced pupils where they may be trained for highly skilled or unusual trades.

In order to place a man finally when competent to earn an independent living it should be incumbent upon the authorities to establish an employment bureau and to keep in touch with both employers and employees.

The medical profession as a body should play its part wholeheartedly and should insist on being heard in this matter at once so that no further time may be lost.

I. B. CORFIELD

# GYNECOLOGY

## UTERUS

Russ W B and Wilson H T Fibro s Ut i  
T St J M d o 8 346

The p thol gic p cesse underlying the case of menorrhagia nd metr hagia caused by cancer fibroids polyps inflammatory ch nges in the uterus and adnexa certain constitution l diseases such s syph l s and t berculosis are fa rly definite and ell understood But there a e cases of menor rhagia and met orrhagia in v h ch n recognizable an tomic hanges or ther cause to ccou t for the hæmorrh ge can be f und

These ases of fibrosis uter so c lled are most frequently found in multipa æ about the menopause They are however by no means infrequent in null paræ and in women ho are fa below the cl macteric age A case in a nineteen year-old gi l has been rep rted by Pool

Formerly hen it as believed that the ncrease in the fibrous t sue n the my metrium as the essent l factor n causi g hæmorrhage it was thought that the fibrou t ue p e ented th ute ne muscle from c ntracti ng ufficiently to close the ve ns and si use

Spontane us cures argu st ngly ag nst the theory that the fibrou tissue in the myometrium is the esse tial facto n the c u ation of f th form of metrorrhagia under dscus on It re son ble to conce ve of a rea lju tme t of the activ ty of ny of the e doc ine glands h ch would re establish the normal phys ology of the pelv c org s By such a hange any pathol ic hæm rhage f m the uterus ould be checked

There abundant e idence t sh th t the endocrine glands may be int mately c nced n the diser h ch causes fibros uteri e en more they may be the prim ry eat f the trouble Pe erted f lli ular act ty of the ary and d m n hed ecret on f the thy d glands em to be the m t pr ble c l i n derlying this d or l They may act ndep n l nt l resp oc lly

U t l the c use of this l t n h s b e m e accu tely dete m ed the del t re tment an t be ut l d Lo l ppl c t i n a d med c n l measur s v f a l C ette ent sfords only tenpor r l i a d should not be esorted to e cept for d ag t purp es Ext eme care should be t ken to ert n bethe or not th e defient e et n f th thy d gland If the signs of hyp thy ds m ar pre nt the e h bition of thy ro d e t a t i nd cated

Poentgeni ti l the ova ie should be em ployed f th ill nt l the bl eding n m n cases whe e it i due t d t rbed ov n an f ction

EDWARD L Co v

W rd F N P oc dent a In Nulliparous Women  
Rep rt of Se en Cases with Surgical Measu es  
Devi d fo Th ir R l f J Im l t Homaop  
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The author det ne pr cidentia in the nullipara as the th d deyr e t uterine prol pse here the uteru p t ude beyond the ulva with complete evers n of the gi l l s It occurs in those who do h a v l tti g Retr e st n is the predisposing facto Th e r quirements are es ential fo the co ect on f th c nditi n

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The rem al vagin l area must be re to ed to it n l l ton city so as to do away with the cy tocele

3 The per e l body mu t be brought to its po it on j t bene th the pubic arch

Th t t t p n the p ation a gh amputation f th c iv nd ar t r tion of the elaxed vaginal ut l t The bd m n i pened and rela ed vesico ute n pace pl cated by P l k s method The ute u n ed to the fa r n extreme cases may be bise ted and sutured t the uppe surface of the fasc a lly th t ectomy i neces ary as f r fibroids the t mp f the ce v i utu ed to the muscle and tas ia th l en The uthor reports e ght cases th cu e n ll S A CH LFA T

Worr ll R The Tecl n qu of Total Hyst ec t my fo Non Malign nt Conditions 4m J  
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The e till some diff ence of opin on as to wheth ult t i l tal hy terectomy should be do e h n rem al of th uterus is necessary for my m otle i mal nant c ndit on

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The pe t eum bet ce the cut r and l g an ent d d d n l the l l dder d e cted d n with the cu r The tern e el r cl mpd belo the i n Th mu culatu e f the cerv is then m i d ll ar and penetr t ng h l f s v to ar the anal the d ection of the ut s the d e cted d a d u t l the ternal o reached when the c c mfc n t the ut exp nded so as to include all th e t e n al os

The mucosa of the vagina is united to the serosa anteriorly by a figure of eight catgut suture the same is done posteriorly the two suture are then used as tractors by which to pull up the field of operation nearer the operator. Sutures on each side close the lateral angles of the opening into the vagina and check oozing. Tying of the two traction sutures closes the central portion of the opening. The artery clamps are replaced by ligatures a purse string suture on each side closes up the broad ligament takes in the stump of the round ligaments and unites these to the rim of the cervix. When tied they secure the ovaries so that their vascular supply is not unfavorably affected.

This operation can be done in from thirty to sixty minutes according to conditions. The author thinks that this method meets all the objections to both total and subtotal hysterectomy as usually performed for non malignant conditions.

W. A. BRENNAN

#### ADNEXAL AND PERIUTERINE CONDITIONS

**Waters C. H.** Hemorrhage into an Ovarian Cyst Simulating Ectopic Pregnancy. *J. Am. M. Ass.* 1918 LXX 295

The patient aged 28 a secundipara was one week overdue with menstruation. She was in good general health and menstruation had been entirely regular and normal previously except for some slight discomfort until the flow was established. The cervix was of normal consistency the fundus not enlarged both ovaries were distinctly palpable the left being slightly enlarged and tender. The adnexa otherwise were negative. Three days later the patient was suffering with severe abdominal pain and flowing profusely. During the night colic like pains in the lower abdomen occurred increasing in severity and accompanied by diarrhoea and a profuse vaginal flow. Large clots of blood and fragments of tissue were passed. The patient's temperature was 101 and the pulse rate 90 and of good quality. There was marked tenderness and rigidity on the left side of the lower abdomen but no mass could be felt and no free fluid was demonstrable. Nausea was present but no vomiting.

Bimanual examination revealed the same condition of the uterus and cervix as was found several days previously except that the external os was slightly patulous. On the left side of the pelvis however a tender globular and cystic mass the size of a goose egg could be determined. It was but slightly movable and corresponded in position to the ampullary region of the tube or the ovary. There was no bulging of the cul de sac.

The tissue passed by the vagina was found to consist of practically a complete triangular cast of the uterine cavity. Microscopically the cast was shown to be a rather hyperplastic endometrium but it showed no decidual reaction or the presence of decidual cells.

During the next week the pain became less severe though persistent and the flow practically ceased. The temperature varied from normal to 100 while the pulse rate rarely exceeded 90. Loss of appetite and occasional nausea persisted. There was no demonstrable change in the pelvic condition noted previously. As there was no appreciable improvement in the local condition operation was decided upon.

A transverse incision revealed no free blood in the peritoneal cavity. The uterus was not enlarged it was in midposition. The left ovary was transformed into a dark tense cyst the size of a small apple. There was no torsion of its pedicle. The right ovary contained a corpus luteum of normal appearance. Both tubes were normal. Left ovariectomy. Willis operation for shortening the round ligaments and appendectomy were followed by dilatation of the cervix and curettage.

Convalescence was uneventful and menstruation since has been entirely painless and otherwise normal.

EDWARD L. COPPELL

#### EXTERNAL GENITALIA

**Carstens J. H.** Gall Bladder Trouble Complicating Disease of the Internal Genitalia. *Im. J. Obst. N. Y.* 1917 LXXI 936

The author refers to the gradual modern development of gynecology into pelvic and abdominal surgery. The gynecologist must know the abdomen be able to make a correct diagnosis and be prepared to treat any abdominal condition surgically.

Many women with pelvic trouble also have gall bladder disease as well as diseases in other organs of the upper abdomen. No patient with even simple pelvic disease should be operated upon unless a thorough examination has been made of all the abdominal organs. If there is any doubt of the condition the incision should be made large enough so that the whole abdomen can be explored. In all pelvic operations where gall bladder disease exists the latter should be operated upon at the same time provided that the patient's life is not endangered by prolonging the operation.

W. A. BRENNAN

#### MISCELLANEOUS

**Boldt H. J.** The Surgical Treatment of Cancer. *Med. Rec.* 1918 XLIII 62

The author has taken up the treatment of cancer from the standpoint of the gynecologist.

A permanent cure is possible in cancer of the uterus only when the cancer is still a local disease and when an opportunity is afforded to operate in the early stages and well away from malignant invasion.

The author uses the vaginal method of hysterectomy if the patient is obese and the disease is still in its incipency using the Schauta technique. In corporal cancer the author uses the vaginal method except where the case is advanced and one might



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Ed D L C R E

## OBSTETRICS

### PREGNANCY AND ITS COMPLICATIONS

Wynne H M N *Interstitial Pregnancy Bull Johns Hopkins Hosp* 1918 xxix 29

Wynne considers ectopic pregnancy in the interstitial portion of the fallopian tube to be of especial interest on account of its infrequency and from the standpoint of diagnosis. He reviews the literature of this interesting and rare condition and discusses the diagnosis, cause, treatment and prognosis. He then reports a case that occurred in the gynecological service of the Johns Hopkins Hospital.

The patient was a white woman, twenty-four years old, married five years, who had had a normal labor and puerperium three years before and had had no miscarriages. Six years before admission she had had an attack of abdominal pain diagnosed as appendicitis but had not been operated upon for it. The past history was otherwise negative. Her last regular period began August 1, 1914, since that time amenorrhea had persisted. She considered herself pregnant.

On November 9, 1914, she fell down stairs and a half hour later while attending to her household duties she was seized with violent general abdominal pain. The pain continued very severe all the afternoon and four hours later she vomited. She noticed that her abdomen was becoming larger and was very tender. A physician was called and brought her to the hospital with a diagnosis of an acute ruptured appendix. She was admitted to the hospital that night.

Physical examination showed her to be well nourished and well developed. She was in great pain. The skin and mucous membranes were extremely pale, the skin was cold and covered with sweat, the pulse 160, small and weak, rectal temperature was 99°. The abdomen was distended, tense, very tender and movable dullness was demonstrable. The diagnosis was ruptured extra uterine pregnancy.

When the abdomen was opened through a midline incision below the umbilicus a large amount of fluid blood and fresh clots escaped, estimated at two liters. A nodule measuring 2.5 cm in diameter was seen in the right uterine cornu on the posterior surface of which there was a perforation 1 cm in diameter through which placental tissue bulged. There was no active bleeding. The attachment of the round ligament was anterior to the gestation sac. A few fine adhesions were found about the right adnexa, the left tube and ovary were normal.

There is a detailed report appended of the gross and microscopical study of the specimen removed together with several microphotographs.

GEORGE F. BEILBY

Rongy A J *The Treatment of Ectopic Gestation Based on a Study of 100 Cases with a Report of 12 Cases of Repeated Ectopic Pregnancies* 1 *J Obst N Y* 1918 lxxviii 86

The author's report is based on a series of cases of ectopic pregnancy during the past eight years. Previous to 1911 his cases were treated without surgical interference until the patients had recovered from shock, since that time the majority of them have been operated upon as soon as possible after their admission to the hospital. A comparative study of the two series of cases shows very little difference in final results. In both series the morbidity and mortality were about the same, unless it is assumed that some of the patients who were operated upon at once would have died if left without operation. Rongy believes it is not yet possible to state which is the better plan of treatment. On the other hand as long as it is impossible to foretell how soon hemorrhage may prove fatal in any given case, he thinks it proper to operate without delay in the greatest number of cases.

An analysis of the cases shows that nearly 90 per cent of them were not recognized until rupture had taken place. In 40 the diagnosis was that of incomplete abortion. Nine of these had been curetted by the family physician once and two curetted twice. Four patients died, one on the third day from uræmia, two from sepsis and one did not rally from the shock. In one of the two patients lost through sepsis an attempt at criminal abortion had been made.

The patients ranged in age from nineteen to forty years, 10 cases between twenty and twenty-five, between twenty-five and thirty, 8 between thirty and thirty-five, 21 between thirty-five and forty, and 4 cases of forty years or older. Seventeen of the patients had never been pregnant, 22 were para I, 16 para II, para VII and 1 para IX. In 1 case the previous pregnancy had been six months earlier, in 12 cases the previous pregnancies had occurred one year before, in 3 cases three years, in 4 cases four years, in 1 case five years, in 3 cases six years, in 1 case each seven, eight and ten years respectively, in 4 cases twelve years, in 1 case each thirteen and sixteen years.

The most striking feature of the series is that of these cases repeated ectopic pregnancies formed an unusually large percentage. CAREY CULBERTSON.

McPherson R *The Conservative Treatment of Eclampsia* 1m *J Obst N Y* 1918 lxxviii 58

McPherson claims that the mortality statistics in eclampsia treated by radical methods run as high as 30 per cent for the mother and 50 per cent for the child. He then compares these figures with

those of the Sloane Maternity Hospital report of the last 54 cases here the eclampsia mortality is reduced to 4.5 per cent for the mother and here the treatment has been conservative.

The routine Sloane treatment then outlined. The eclamptic patient is isolated in a darkened room given one-quarter of grain of morphine sulphate ounce of castor oil following gastric lavage and a solution of 1 gram of gallons for 5 per cent glucose solution. Phlebotomy is done if the blood pressure so exceeds 150/100 until this is reduced to 100/60. A quarter of grain of morphine sulphate is administered every hour until respirations drop to eight per minute. By the time the convulsions have ceased the patient are in labor and delivered normally or by cesarean section.

The entire history of the 5 true eclamptic patients. Of the 3 patients who died the first died within 3 months and the others did not. The McFeters strongly urge a return to the normal attitude in the part of obstetricians of general tendencies. He holds that blood alkalinity is not absolutely in place in the treatment of eclampsia. In pregnancy except in the cases where the eclampsia is accompanied by a left renal pelvis some evidence of pyelonephritis in the child.

Dr. J. E. Cawson's of Abington, Massachusetts.

Accidents during the first half of the pregnancy are considered. The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000.

The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000.

It is generally supposed that 1 per cent of abortions are eclamptic. This is found to be incorrect. The incidence of eclampsia is 1 in 1000.

Abortion during the first week of pregnancy is a perilous thing. The incidence of eclampsia is 1 in 1000.

The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000. The incidence of eclampsia is 1 in 1000.

Under the national maternal and fetal casualties of abortion, the most frequent cause is in 65 per cent of cases the cause is eclampsia.

Decidual endometritis is a cause of abortion in 5 per cent of infected and 68 per cent of uninfected cases. Hilar reposition is a cause in 30 per cent of the cases.

Lacerations of the cervix and pelvic floor account for 14 per cent of all abortions.

Cancer and intrauterine tumors are frequent causes.

Poisons in the maternal blood from fevers such as smallpox, scarlet fever, typhoid and the like are frequent causes of abortion as are affections of the nervous system such as epilepsy and shock.

Epidemic abortion caused by the bacillus abortus of Bang and streptococci have been reported.

The cause referable to the fetus include all the many deaths of the placenta, death of the fetus and stillbirth.

The paternal causes include mainly syphilis, gonorrhea, lead poisoning and old age.

In conclusion the author urges every physician to study the pathology of the fetus. HARVEY B. MERRIS.

Coyl, E. G. Toxemia of Pregnancy. J. K. Sas. Vol. 5, 1918, p. 63.

Eclampsia occurs about once in 300 cases of pregnancy according to the author most frequently during the first half of pregnancy and least frequently during the peripartum. It is still a disputed question whether the toxemia causing eclampsia are derived from the syncytium of the placenta or from fetal metabolism. Most opinion leans toward the latter. It is probable that the toxemia of the first half of pregnancy is due to syncytial growth and is not affected by maternal treatment while such treatment probably affects the toxemia of the latter half of pregnancy. The symptoms begin due to fetal metabolism and disappear with the death of the fetus.

In hydramnios associated with an enormous egg of syncytium eclampsia is extremely rare. The maternal is usually the cause of peripartum nephritis but albuminuria may occur before or after eclamptic convulsions. The placenta. Here the albuminuria may be due to the necrosis of the placenta during the convulsion. The incidence of eclampsia of the reported cases which last to the point. The cases are typical. He urges a flexible management of the urine especially in the late part of pregnancy when proper treatment will abort eclampsia in many cases.

I. R. G. 1. With Dr. J. E. Raines Study of Eclampsia. J. Obst. Gynec. 1918, p. 9.

The material for this study were obtained from a case of eclampsia treated in the antenatal series of the Index Medicus from 1878 to 1917 including a labile in secboles or other contraindications referred to in accompanying graphs. In



The pulmonary vessels have been quiet for several periods of tuberculous men. It is to be remembered that the disease is in the first stage and has been quiet for a minimum period of time.

It is probable to determine the certainty of each patient will be added to the first patient. All and each badly fatigued must be notified. Multiple tuberculous lesions recent and the development of secondary lesions especially large and element loss of eight to ten months ago set back of vigor and vitality. It is a frequent time of alloments.

He has been able to walk. It is the fifth month of pregnancy the uterus is enlarged. It is the fifth month of pregnancy the uterus is enlarged. It is the fifth month of pregnancy the uterus is enlarged.

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Walsh J. Pregnancy in Cases of Tuberculosis of the Lungs. *American Journal of Obstetrics* 1918 10

Walsh has made a study of 38 women in all stages of pulmonary tuberculosis with respect to child bearing and its influence on their condition. To these patients after recognition of their disease 50 children were born. In 7 the disease was recognized and treated before the first pregnancy. In 1 the disease was first recognized during pregnancy. Out of the first group died and of the second there were 3 deaths. Of the first group 25 were apparently as well as before pregnancy. 3 having had three children and 6 two children. The pregnancy occurred one to eleven years after treatment. The average being four years. Of the second group patients are still under treatment and the remaining 6 in good health after period of time varying from three months to thirteen years. The treatment effected in the cases was carried out under sanatorium management.

Walsh concludes that the act of tuberculois should be addressed against marriage. Quiescent cases especially attend to the duties of marriage. It is fully satisfied that if they wish to marry they may be able to do so.

One might say that pregnancy is put to rest. It is the fifth month of pregnancy the uterus is enlarged. It is the fifth month of pregnancy the uterus is enlarged. It is the fifth month of pregnancy the uterus is enlarged.

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## LABOR AND ITS COMPLICATIONS

De Gaudino M F Uterine Crying (Vagido uterino)  
*Rev Argent de obst y ginec* 1917 1 394

Intra uterine foetal crying was first described by Felipe List in 1630. Bucuri collected 50 cases in literature up to 1904. Many authors deny the existence of such a phenomenon because they have never known nor heard of such a case.

The conditions as gathered from the published cases under which intra uterine crying may occur are (1) rupture of the bag of water (2) entrance of air into the uterus (3) excitation of the foetal body (4) compression of the cord. The necessary factors for production of intra uterine foetal respiration are interruption of the placental circulation and excitation of the skin by sensory stimulus. The first is produced by section or compression of the cord.

Intra uterine crying is nothing else than the premature presence of extra uterine conditions. By any interruption or disturbance of the placental circulation the foetal blood becomes venous and excites the respiratory center and the air which is in the uterine cavity is inspired. If the child expire the escaping air is heard as a sound produced when the vocal cords are tense.

All the necessary conditions may be found in labors with extensive manipulations. In the 50 reported cases there were 11 forceps cases, 1 version and in all cases some manipulation which permitted air to enter the uterus. Thirty four of the infants expired immediately after birth, in 10 the condition was not stated, 5 others were asphyxiated but were revived. There was only 1 death.

The author relates one case. This was in twin labor and the intra uterine crying was distinctly heard after the passage of the first foetus. The second foetus was extracted by forceps and was in good condition.

W A BRENNAN

Potter I W Version with a Report of 200 Additional Cases Since September 1916 *Am J Obst N Y* 1918 LXXVII 215

The author bases his opinions on his own experience with over 6000 personally conducted confinements regardless of textbook methods of practice or procedures advocated by many teachers of obstetrics. These opinions are:

- 1 Version lessens the shock of labor
- 2 It lessens the dangers due to pressure from and on the head of the child
- 3 Version should never be undertaken until the os is fully dilated or easily dilatable
- 4 The majority of occipitoposterior positions are best treated by version
- 5 Version is readily performed in the primipara as in the multipara
- 6 The fatal mortality of version should not be as great as that of prolonged labor and instrumental delivery
- 7 Injuries to the child's head are reduced by a properly performed version

8 Face presentations are better treated by version

9 Prolapse of the cord when the cervix is dilated or dilatable and the cord is still pulsating is best treated by version

10 Placenta praevia in multiparae with cervix dilated or dilatable is best treated by version

11 A moderately contracted pelvis when the child is small is best treated by version

CAREY CULBERTSON

Wood R L Labor Complicated by Dermoid Cyst *Hosp Bull D pt Public Chrls N Y* 1916 1 90

The patient was a negress obstetrically normal who had borne one child normally. Dilatation was slow, eighteen hours elapsed before the membranes ruptured spontaneously. Forceps in a mid plane were applied under ethyl chloride then ether anesthesia because of the exhaustion of the mother. Delivery was carried out with moderate ease, one suture was placed for a mucous tear.

At the first traction a large body was expelled from the rectum. It was not pedunculated and no bleeding or symptoms of collapse followed its passage. The laboratory reports showed it to be a true dermoid cyst containing much cheesy material in which hair was present and an occasional area of bone formation. It was certain that it was not a secondary impregnation with fatal death.

Dermoid may exist in the rectum at the level of the sacral promontory loosely attached and folded upon themselves. The whole mass was well nourished and the surface veins were distended. There were no signs of a pedicle which had under gone torsion. It had a living and fresh appearance.

## MISCELLANEOUS

Bartholomew R A Syphilis as a Cause of Stillbirths. Analysis of 48 Stillbirths Occurring in 1500 Obstetric Cases at the University of Michigan Maternity Hospital *J Am M Ass* 1918 1 89

There is need for the adoption of a uniform definition of stillbirth and of compulsory reporting of stillbirths in order that statistics on this important cause of infant mortality may be improved.

Syphilis is the causative factor in at least one third of the stillbirths from the time of viability to full term and a Wassermann reaction is strongly indicated in case in which there have been suggestive clinical symptoms, unexplained abortions or premature labors with macerated babies.

A combination of mercury and salvarsan is more effective in assuring the birth of a healthy infant than salvarsan alone.

Important confirmative evidence in the diagnosis of syphilis can be obtained from microscopic examination of the placenta or in case of stillbirth from examination of the fetal liver by the Levaditi method.

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measure during pregnancy and labor and he proceeds to elucidate this belief in a somewhat reminiscent paper covering his experiences of the past twenty years. After reviewing former obstetrical methods and ideas of historical value only, he produces statistics covering his work of recent years that are of definite interest. Thus he notes a decrease in eclampsia at the Sloane Hospital during recent years. From Jan 1 1901 to Dec 31 1905 there occurred 113 cases in 145 deliveries 1.3 per cent. From Jan 1 1911 to Dec 31 1915 but 74 cases occurred in 924 deliveries .08 per cent.

He favors turning breech presentations by external manipulations before labor and believes that he has so converted .5 per cent of his breech cases. Brow face and persisting occipitoposterior positions are likewise righted without waiting for labor to intervene.

He attempts to prevent large babies by dieting the mother and by early induction of labor if the child appears to be overgrowing.

The indication for the use of pituitrin has been narrowed down in Voorhee's experience to simple inertia without obstruction. There are four cardinal conditions before employing it: (1) the cervix must be completely dilated and effaced; (2) the membranes must be ruptured; (3) the presentation must be normal; (4) there must be a proper relation between the fetal head and the maternal pelvis throughout.

The author prefers nitrous oxide gas or gas with oxygen as his analgesic in labor but finds even this method far from being a perfect anæsthetic. Two drawbacks to its use are: (1) the frequent great difficulty in controlling the advance of the head over the perineum requiring a change to chloroform or ether; (2) an increased tendency to postpartum hemorrhage.

He appears to be enthusiastic over induction of labor and finds it preferable to have a primipara delivered a week or two ahead of time. Castor oil and quinine, failing which the de Ribes bag constitute a method of procedure.

From 1901 to 1905 labor was induced 284 times in 7145 cases 3.9 per cent. from 1911 to 1915 in 924 cases 30 labors were induced 3.3 per cent.

During the first period low forceps were employed 558 times 7 per cent. during the second period 380 times 4 per cent. Medium forceps operations increased from 16 to 449 or per cent to 4.5 per cent. High forceps operations likewise increased from 81 to 138 or per cent to 4.5 per cent. Versions diminished from .99 or 4 per cent to .27 or 3 per cent. Craniotomies diminished from 33 to 18 or 0.3 per cent to 0 per cent. The last symphyiotomy was performed in 1902 the last pubiotomy in 1908.

From 1901 to 1905 cesarean section was done 38 times 0.53 per cent. from 1911 to 1915 there were 133 cases 67 primary 70 secondary or 1.65 per cent.

Voorhee's conclusions are that high forceps operation is diminishing in frequency that elective versions, symphysiotomies and pubiotomies are more or less obsolete and that craniotomies are performed as a last resort on dead injured or nonviable babies. Induction of labor and cesarean section are frequent in recent years and are safe and sane operations under recognized conditions disregarding the radicalism of men who perform abdominal section merely as an easy way out of any obstetrical difficulty.

The author's views are on the whole optimistic in contradistinction to those writers who bewail obstetrics as it is practiced in general. While acknowledging that there is too much indifference, ignorance and bungling work among the rank and file of the medical profession in the practice of obstetrics, he formulates the four changes which are bringing about great progress. These are:

1. Women appreciate that pregnancy and labor are often far from physiological processes and seek advice early.

2. Medical students and practitioners, even midwives, are better trained and know more frequently what to do in an emergency. They also know when they have reached the limit of their knowledge and resources and when to call in skilled assistance.

3. More women are delivered in hospitals where every weapon is at hand to combat any expected or unexpected complication.

4. More physicians specialize in obstetrics.

CAREY CULBERTSON



# GENITO URINARY SURGERY

## KIDNEY AND URETER

Schmidt L E Focal Infection of the Genito Urinary Tract Ch 8 M R d 98 xl 55

The author traces many cases of chronic persistent metastatic infection to old genito urinary disease. He believes that the gonococcus does not remain longer than a very small amount in the genitourinary tract. But the ravages of the gonococcus lead to good soil in which other microorganisms thrive which are indigenous to that tract. Schmidt lists the essential lesions and points out that the lesions are infectious and believe that generally the potatoes infected with the virus are all.

The author emphasizes the fact that the genitourinary disease should be considered as a urological entity. He believes that the tract is too often overlooked as a source of infection by the general physician and thinks that the urologist should more often be taken into consideration in the study of cases which have hidden foci of infection may be found.

A C S O K S

Green R E Tumors of the Kidneys J I S 1908 43

According to Green renal tumors are encountered about one time in a thousand cases. They are usually bilateral and are most frequently found before the death of the patient. The diagnosis is based on the symptoms of hematuria, pain, and tumor. Of these three signs, hematuria is the most important.

He points out the following cases:

A woman thirty years old, childless and unmarried, entered the hospital because of general weakness. She gave history of frequent attacks of hematuria, a pain in the lower back, and a found nodule in the backache and some general ill health. The disease had been a great loss of weight. The woman was not cheerful. The physician examined her and did not realize any gross abnormality. A few days later, the woman returned with the same symptoms but with a great deal of pain in the lower back. The physician examined her and found the right kidney somewhat enlarged and palpable. The left kidney could not be palpated.

After a lapse of several weeks, the patient began to complain of more serious tenderness in the lower back and the right humerus and near the head of the left femur. Radiographs of these areas showed the presence of bone tumors. She also complained of some bleeding from the

vision of the left eye and the ophthalmoscopic examination disclosed pathological condition of the retina but nothing more. A radiograph revealed at this time an enlarged left kidney which could now be palpated satisfactorily. Later there was metastasis in the flat bones.

Due to the finding of hematuria with bony and probably renal metastasis, a diagnosis of renal tumor probably hypernephroma was made. The patient lived for months longer but no autopsy was obtained. H W E W L R R

Menetier P Lithiasis and Kidney Cancer (Lithetic and) B R A d d m d 1908 165

The author reports the case of a woman forty-nine years old, with chronic disease of the right kidney lasting for fifteen years and terminal general tumor of the flank and cachexia with severe complications in the final stage with severe pain and debility which caused the patient's death. Autopsy showed that the symptoms were the consequence of a cancer of the right kidney. The gross findings were pyonephrosis with metastases to the lung and liver.

The author thinks that the case has the characteristics of a chronically inflamed pelvis. The meninges. There is a causal relation ship between the pyelitis which accompanied the disease and the author concludes that this case of the cancer developed from the chronic pyelitis. W A B R E

Brinley W F Lithiasis with Bilateral Nephritis In the element B R M C S J 1908 165

Brinley discusses the whole question of lithiasis in the bilateral nephritis. He bases on a study of the literature. Of these two conditions, he believes that the bilateral nephritis is the more important. In the Mayo Clinic, the author found that the bilateral nephritis was considered to be a warning against operative interference. The author operated on a patient with bilateral nephritis and pyonephrosis on October 10, 1908.

After these cases, the author planned to operate on a patient who had a painful kidney. The patient was better after the operation. In the number of cases, the function of the kidneys was considered to be a warning against operative interference. The author operated on a patient with bilateral nephritis and pyonephrosis on October 10, 1908.

Estimation of the latent value of the two kidneys is based upon the radiographic cystoscopic examination and the phthalein test applied to the

kidneys separately. The kidney with acute complications should be operated upon first without acute complications the kidney with the better function should be operated upon first occasionally simultaneous bilateral operation is advisable.

Stone recurred in 20 per cent of the bilateral cases as against 10 per cent of unilateral cases. Braasch considers also what to do in case of pyelonephritis pyonephrosis hydronephrosis or tumor in the opposite kidney stone in a single kidney stone in a horseshoe or fused kidney. His conclusions are logical and based on good evidence. G. G. SMITH

Thompson A. R. Hematuria. *Clinical Lecture*  
*Gyns Hosp Ga* 1917 xxxi 450

The author presents three interesting cases of hematuria and lays down some rules for guidance.

1. Hematuria is not a disease but a symptom indicating in a large number of cases grave disease of the urinary apparatus.

2. Hematuria is not a common symptom of vesical calculus.

3. Hematuria should be investigated with a cystoscope during an attack of hemorrhage the origin of the blood can thus be seen and localized.

4. Hematuria is rarely fatal in itself. Its danger lies in the disease which causes it.

The first case was a man 5 years old who was admitted to the hospital with a history of pain in passing water and hematuria of several months duration.

Examination showed extreme anemia, persistent hemorrhage and the absence of any localizing renal signs favored the theory that it might be a growth of the bladder. Roentgenogram and X-ray examination gave negative results.

Cystoscopy located blood coming away from the left ureter. This caused suspicion of a new growth in the kidney. As the patient was very anemic the author decided to operate on the left kidney to discover the trouble.

Incision disclosed an extraordinarily mobile kidney with some evidence of formation of new fibrous tissue around it. The ureter was perfectly healthy. The kidney was not incised but nothing was found except the mobility of the kidney to account for the bleeding.

Fixation of the kidney relieved the patient of hematuria and the urine is quite clear.

All the cases of movable kidney in males that the author has operated upon have had hematuria.

The second patient aged 63 gave a history of various attacks of hematuria during the past three years. In the last hemorrhage his urethra became blocked with a blood clot and retention was caused. The bleeding lasted about two days and left the patient very debilitated. He had lost about ten pounds in weight during the past year. Cystoscopy disclosed a papilloma on the left side of the bladder above the ureter.

The author discusses the cystoscopic appearance of simple growth. In cystoscopic examinations if

a shadow is seen then it is known that the growth has a pedicle and it can be recognized as a simple growth not malignant. A malignant growth is sessile, necrotic and white. A simple growth has the color of normal mucous membrane, bears a multitude of finger like processes and casts a shadow.

Growth of the bladder either simple or malignant are causes of hematuria.

Another case is referred to by way of comparison with the first. It is that of a woman aged twenty. She was admitted on account of pain over the left kidney. When quite young attacks occurred at fortnightly intervals but for the past few years the attacks occurred at irregular intervals commencing more often at night and usually lasting forty eight hours. They were invariably accompanied with severe retching and loss of appetite.

Examination showed the cardiac, vascular, respiratory and alimentary systems normal except that she was at the time under dental treatment. Incidentally the author advises that great attention be paid to the teeth when dealing with urinary disease. The urine showed blood corpuscles and several epithelial cells. X-ray examination was negative and no macroscopic blood or pus appeared in the urine. Cystoscopy was done and the left ureter catheterized for a distance of 5 cm. The author made an exploratory incision and found a small hydro-nephrotic extremely movable kidney. The kidney and ureter were incised and a tube placed in the kidney wound down to the bladder, no obstruction was found. There was a great deal of fibrous tissue formation around the kidney and the upper part of the ureter and on division of the fibrous tissue band the dilated pelvis almost at once resumed its normal appearance.

This case shows that one may find a very extensive lesion in the kidney following upon a movable kidney with no or only microscopic evidence of hematuria in the female. Yet in the male there may be slight change in the kidney and a good deal of hematuria. The reason is that in women movable kidney is a chronic condition whereas in the male it is due to a sudden injury in other words movable kidney in the male is a dislocation.

The next case is introduced to show the value of cystoscopic examination.

A male patient was admitted to the hospital with a fracture of the pelvis in the region of the obturator foramen. The patient was in a state of collapse blood appeared in the urine. An irrigating cystoscope was introduced and the bladder washed out through it the bladder was found absolutely intact. To locate the hematuria an endoscope was passed into the urethra and found in the region of the compressor urethra muscle a great deal of contusion in the mucous membrane of the urethra with blood oozing from the surface. There was sufficient evidence therefore that the injury was not in the bladder but was in the urethra. If an injury occurs to the posterior part of the urethra blood may gravitate back into the bladder and hematuria may result.

In conclusion the author gives a table of the likely causes of hematuria including the medical causes such as acute nephritis.

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4 Injury to the bladder and posterior part of the urethra

Calculation of the urinary tract

o (r th of th kidney

Tuberculous disease of the kidney

Surgical cases of hemorrhage should be operated upon with utmost delay to save the patient's life.

Palliative treatment may be used in cytotoxic if it will stop the cause of bleeding.

THE DROZD IT

M	M J	Non Tub	culou	Inf ct ons of th
Kidn y	J I	M M S	19 8	4

Recent studies show that the bacteria most commonly responsible for these infections are the bacillus coli, the streptococcus, staphylococcus, bacillus typhosus and paratyphoid bacillus.

The routes by which pathogenic bacteria invade the kidney are (1) the urinary tract (ascending infection), the common route of secondary infections; (2) the blood stream usually referred to as haemogenous; this is usually a primary infection and (3) continuity as by direct transmission from the colon to the kidney or by way of the lymphatics.

Moore believes that the most important factors are (1) urinary tract infection, (2) abnormally patent ureteral orifices such as permit backing up or backflow from the bladder, and (3) the presence of pathologic me-

It urges that on a suspicion of blood-stained urine the source should be diligently searched for until definitely determined. It frequently will require cystoscopic examination of the catheterization and X-ray to determine this. If pus is found in the urine it must be definitely determined whether it has its origin in the urinary tract and if it has it should be treated through the bladder and ureter up to the kidney.

The author then discusses hyd oneph osi and pyoneph osis and states that many facts have to be determined in studying the conditions ( ) the site and degree of obstruction ( ) the nature of the obstructive lesion due to impacted stone or compression from without (3) the amount of functional loss by the affected kidney and (4) the presence or absence of infection in the other kidney.

In speaking of nephrothiasis, Moes considers the following factors entering into its etiology: (1) the finding of many of the urinary solids in saturated solution; (2) the influence of local irritation; (3) the presence of foreign bodies such as bacteria; (4) the influence of degenerated epithelium.

In treating infections of the kidney the author believes in alternately rendering the reaction of the urine acid then alkalinic. He administers urotropin when the urine is acid. H. W. F. WALTHER.

Kret ci me H L Tub cul is of the K dn  
P sent t on of Tl re Cases S g Cl t Ch g  
9 b 3)

Renal tubul although usually primary in the urinary tract is secondary to some other focus in the body. Clinically the primary focus may not be found but a careful necropsy reveal a healed pulmonary or glandular focus more frequently than the primary focus; clinically apparent

Renal tuberculosis is found to be a disease of adult life and frequently operates in women than men because of doubt to earlier diagnosis in this category. It usually unilateral the right side being more than commonly infected than the left.

Clinical, experimental and pathological evidence supports the hematogenous route of renal infection which in turn becomes the primary cause of most instances of ectopic tuberculosis.

The symptoms are entirely divided into three classes: (a) kidney (b) bladder and (c) prostate. In the first class is included an enlarged kidney, in the second a stone in the bladder, and in the third a stone in the prostate. The diagnosis is made by the following signs: (a) kidney, (b) bladder, (c) prostate. The treatment is as follows: (a) kidney, (b) bladder, (c) prostate.

I frequently find that one of the first symptoms of the disease is a peculiar character in the frequency of the micturition associated with increased frequency of urination. The frequency is associated with the frequency of urination. The bladder is especially intolerant to the micturition of the fluids under slight pressure and is particularly intolerant to the micturition. In the hyperensitive bladder, the micturition may be readily elicited.

Only the cystic picture is that of any  
the cystic lesion at the tubercle forma-  
tion in the peripheral part. Tubercle formation  
is confined usually to the region of the urethral  
orifice applying the infectious material however  
important exceptions to this condition are some-  
times met with.

By far the most important finding is that of tubercle bacilli in the urethral catheterized specimen of urine and this is the one finding that clinches the diagnosis. The organism may be demonstrated in about 60 per cent of the cases.

Putnam's case is almost a constant finding but the amount is very variable from time to time while hematoma though not always present especially commonly produced by the infection.

and may be microscopic or so profuse as to obscure the other symptoms of renal tuberculosis.

Three cases are reported in detail giving a complete clinical history, physical findings, cystoscopic finding, ureteral catheterization findings as regards ureteral obstruction and cultures, leucocyte counts, examination for tubercle bacilli of each urine as well as complete phenolphthalein tests of the function of each kidney, the time of appearance of the dye and the total output in one hour being considered.

Blood and radiographic findings are given. The indications in each instance are clearly defined by summarizing the evidence.

One of these patients illustrates very well the occasional inadequacy of the phenolsulphone phthalein test for kidney function in renal surgical conditions especially. The right kidney secretes 35 per cent and the left but 16 per cent of phenolsulphonephthalein in one hour; the left kidney contains tubercle bacilli and the right contains none. Upon a second examination without instrumentation of any kind the total output is 40 per cent in one hour. What appeared to be a very inefficient function is proven to be efficient. This finding occurs at times due no doubt to instrumentation especially ureteral catheterization and is coincident with lack of urinary secretion. A second functional test as was performed in this instance usually suffices. On the other hand a polyuria is occasionally produced by instrumentation.

Kretschmer divides the ureter by means of a Paquelin cautery, the operative field being completely covered to prevent possible contamination. The pathologic condition of the ureter serves as a guide to where the ureter is to be severed. If it is thick walled with a small lumen it is a safe procedure to resect as much as can easily be exposed; however if the walls are thick with a dilated lumen as complete a ureterectomy as possible should be performed.

In the usual case its section at the brim of the pelvis suffices. A few inches more or less ordinarily can not reasonably have much influence upon the future septic condition of the bladder or the formation of persistent sinuses.

The perirenal fat is often the seat of tuberculous infection in renal tuberculosis even when it looks and feels perfectly normal macroscopically. Tubercles are constantly demonstrated in such tissue; therefore Kretschmer isolates by multiple ligation as much of this fat as can conveniently be delivered and removes it thus presumably reducing the tendency toward sinus formation to a considerable degree. Should the perirenal fat be indurated and thick, this part of the operative technique is dispensed with.

HARRY CULVER

**Furniss H. D. Renal and Ureteral Conditions in Women.** *Am J Surg* 1917 XXXI 257

The author enumerates the various pathologic conditions of the kidney and ureter to which women

are particularly disposed. Movable and floating kidney are in his opinion not to be operated upon unless causing Dietl's crises, gastro-intestinal disturbances or pyelitis. He warns against operating upon these cases in the presence of general enteropneptose.

Stricture of the ureter likewise occurs with much greater frequency in women also injury due to operative interference in the pelvis.

Furniss further discusses the choice of procedure in the crises. J. S. EISENSTADT

**David V. C. Ascending Urinary Infections and Experimental Study.** *Surg Gynec & Obst* 1918 XLII 9

David briefly reviews the literature dealing with the anatomical, clinical and experimental observation on the routes by which the kidney or its pelvis may become infected and conclude that the recent work leans strongly to the view of ascent of infection by way of the lymphatics of the ureter. Some of the reported work loses value because of lack of proper control. The bacteriology of the normal urine of the animals should be known as well as a thorough microscopic picture of the urinary tract at postmortem and the bacteriology of the blood. Among 31 dogs the control ureter showed no evidence of cellular infiltration in 14 while 10 had isolated round cell infiltrations in the submucosa and 10 other had this condition well marked. The last mentioned had normal bladder urines.

David's experiments exclusively in his experiments and on bacilli as the experimental microorganism. Urine cultures were made in all instances before experimentation and dogs having septic urines were excluded. All dogs had a section of the right ureter removed for microscopic study as a control and right hydronephrosis was established by ligation of the right ureteral stump.

David has attempted to determine in this experimental work carried out by careful aseptic surgical technique and equally careful bacteriological and pathological analysis.

1. The reaction of the bladder under varying conditions of traumatism and obstruction to the colon bacillus. He found that in unobstructed bladders into which colon bacilli had been injected that 9 bladders contained the organisms after intervals of three to thirty-two days and one was sterile after thirty-four days while the left ureter and kidney pelvis contained bacillus coli only 3 times and the right hydronephrosis was sterile in all but one instance.

There was no evidence of involvement of the muscularis and submucosa of these bladder by inflammatory exudate.

The bladders previously traumatized with turpentine showed edema and polymorphonuclear infiltration of the submucosa and in one instance the periureteral lymphatics showed evidence of polymorphonuclear infiltration which decreased in amount as the ureter ascended and caused a



A correct idea of prognosis is often made from general examination but numerous errors have been made. Recent work in methods of quantitating renal function furnish data on which to base judgment as to prognosis and have given better insight into nephritis. The importance of considering the patient as a whole cannot be emphasized too strongly.

Such extrarenal factors as severe anemia or cardiac decompensation influence renal function profoundly. Under such conditions renal function tests may indicate advanced nephritis and yet the kidney itself is structurally sound. Prognosis here depends on the type and severity of anemia or the character of the cardiac lesion and renal function may be an unimportant factor. If renal function is depressed one must determine by thorough examination whether it comes from a pathological kidney or from extrarenal disturbance before drawing conclusions. If the extrarenal disturbance get better or worse renal function probably will change but prognosis depends more on the character of the extrarenal disturbance than on the renal function. Improvement of renal function accompanying improvement of extrarenal condition is indication of a structurally sound kidney.

If renal function is poor in the absence of serious disturbance in other organs the probability of improvement in renal function is slight except in acute nephritis. In chronic nephritis prognosis can be determined from renal function with greater success than in extensive extrarenal disturbances.

Low renal function does not justify a diagnosis of nephritis. Extrarenal factors must be excluded or given their proportionate value. Used in this way the tests help greatly in the diagnosis of nephritis.

When nephritis is present the tests measure renal activity and when there are no extrarenal factors prognosis is in chronic nephritis based on test for renal function shows relatively few mistakes where renal function is quite low.

When renal function is fairly good the chance of prognostic errors is greater. Repetition of test at interval gives some idea of the progress of the renal lesion and is of importance in prognosis.

There are two quite distinct groups of nephritis in one the lesion progresses at a steady rate rapidly or slowly in the other progression seems to be by sudden exacerbations. The last group even with repeated tests cannot warrant predictions with safety and a more guarded prognosis must be given than in the former type.

In hospital practice the author makes use of four tests: (1) phenolsulphonephthalein elimination (2) determination of the blood urea and the rate of urea excretion (3) determination of specific gravity, sodium chloride and nitrogen content of the urine collected in two hour portions during the day with special diet. At night one ten hour specimen is collected and analyzed. Comparison of the day twelve hour amount with the night twelve hour amount is of value. (4) The amount of diuresis

produced by such a diuretic as theophylline. The phthalein test is made soon after admission if the patient is not incontinent or in coma. If incontinent or in coma blood urea is determined. When blood urea is not increased considerably the kidney can be excluded as a cause of coma or other serious symptoms and prognosis depends on existing extrarenal disturbances. If it is increased markedly prognosis is grave. When the phthalein test can be satisfactorily made it serves to group the nephritics preliminarily into mild, medium and severe. In mild case phthalein elimination is normal or slightly depressed. In them blood urea is normal or almost normal unless the patient is on a high protein diet. The Ambard coefficient in such cases is often normal.

In the mild cases the two hour test is particularly useful. The patient is put on a standardized diet for two days and on the third day the special meal and the urinary collections of the two hour test are made. During the day blood and urine are taken for the Ambard coefficient or the McLean index.

If phthalein excretion is 3 to 45 per cent moderate renal disturbance is present due to intrarenal or extrarenal lesions. In such cases the two hour test is of little value. The determination of Ambard coefficient or McLean's index is more helpful.

In mild cases with cardiac disturbance and edema if promptly improved by digitalis renal function is good and prognosis should be based on the cardiac condition. If edema is marked in combination with digitalis a diuretic such as theophylline produce prompt diuresis and renal function is good if not renal function is poor and prognosis is proportionately worse.

If phthalein elimination is below 35 per cent renal function is poor and in patients without cardiac decompensation this indicates usually severe renal lesions. The drop in phthalein excretion down to zero indicates an ever increasingly bad prognosis. Ambard's coefficient usually parallel phthalein excretion. After phthalein excretion become low determinations of blood urea are of value for as they continue to rise they indicate a nearer approach to uræmia.

Many patients with chronic nephritis have arterial hypertension or arteriosclerosis or both. They are liable to cerebral hemorrhage or to angina pectoris.

Such development cannot be predicted from test of renal function. Likewise death due to cardiac decompensation cannot be predicted from renal function alone but prognosis should depend on a proper evaluation of renal and cardiac condition.

Renal tests give valuable information as to renal function that helps in treating the cases and from a consideration of both renal and circulatory conditions help in forming a far better idea of prognosis than if there were no measure of renal efficiency.

IF G. HAMER

Alcock N G Ren I Funct nal Test and Pyelography  
Kidney Disease J I St M S  
98 45

The secret on of water and the phenolsulphone phthale nite s a the only t o t e t Alcock employs in alk n function l tests n kidneys He employs both t e t s in combi at i n the cystoscopy, and u ete al thietaziti I the t e r test h e c e s flu l i n t the pat e t a d then later not s i e t h e r o r i t e t e r b t h k d n e y e s p n d to the n c r e a d s l u d i n t a k a n l h c h k i l e y e p o n d the s o n e a n d t h e g r e a t r i n t

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by the catheter itself If the ureter makes some  
un su l bend the cath te ill st ghten it out  
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## BLADDER URETHRA AND PENIS

Hunne	G L	A Ra	Typ	of Bladder Ulce
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The lesion under discussion is a chronic inflammation of all coat of the bladder wall by the time the case is treated the lesion is widespread.

In spite of the widespread lesion the remarkably little to be found by cytology and thus indicate that many of these patients have suffered fifteen years or more and have tolerated from clinic to clinic in an effort to find relief.

The crucial test is to copy the finding of a small abrasion on the mucous surface which if not bleed on discovery, usually bleed on being touched with instrument or with a cotton pledget. It takes minute area that give rise to the urinary findings, a few leucocytes or a few erythrocytes both when the urine is carefully settled or centrifuged.

Centrally the distention of the bladder by a catheter prevents the knee-pressing posture causing the distention and tiny stream of blood flow through it. In such a case the first notice of the filling of the ureter in the straining contraction is perfectly leucorrhoea that has just been distinctly observed and by sweeping the pelvis around the equator of the bladder one understands it to be the exact seat of the source

[illegible]

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there i l ss of the epithelial c at and the unde ly ng  
mucosa sh s the granulat on tissue cha cter tic  
of an ct e ulcer Other ect ion taken from what  
appear to b an ulcer in the gro s pecimen show an  
abrupt nding of the epithel al layer at the edge of  
an area th t i e v d ntly unde going heal g and  
here the muc sa lay e i l ss r chly supplied with  
capill res a d i mu h like the mucosa beneath  
the epithelial co er ng sho in a p eponderance  
of connect e ti ue and i ltration of small round  
cells and leucocytes

The nucleoli in the neighborhood of the ulcer have an increase in the number and size of the capillaries varying in the different specimens.

The capillaries are often stuffed with leucocytes as are many of the lymph spaces.

After an experience with 18 cases covering a period of seventeen years since treating the first patient and a period of nine years since seeing the second patient and beginning to make a special study of this type of bladder inflammation the author believes it safe to say that no form of treatment will suffice in these cases except complete excision of the inflammatory area.

The excision is done through a suprapubic incision. To facilitate the finding and handling of the bladder it is left full of air if cystoscopy has just been done in the knee breast posture or it is distended with sterile fluid just before operation.

If possible the operation is kept extraperitoneal. This can be accomplished in those cases in which the disease is confined to the vertex and anterior wall. If the disease involves a portion of the bladder covered by peritoneum it is possible in some cases to separate the involved peritoneum but more often the attempt at separation results in an opening into the peritoneum or into the bladder.

After excision of the diseased area the bladder is closed by bringing the edges together with a running lock stitch suture of twenty day formaldehyde catgut No. 2 leaving a slight opening in the vertex through which the mushroom retention catheter is carried and sutured to the bladder wall with a No. 10 ten day catgut. The abdominal wall is closed except for a small opening to carry the rubber catheter and two cigarette drains which are introduced down to the bladder wall.

These cigarette drains are removed at the end of forty eight hours and daily irrigations of the bladder with a 1 to 1000 solution of silver nitrate are carried on through the retention catheter the strength of the solution being increased as the patient recovers. An ounce or two of the solution is introduced and immediately withdrawn through the catheter until several washings are made. This is best accomplished with the patient on his side.

The retention catheter is withdrawn on the tenth to the fourteenth day after which the irrigations are given through the urethra daily until the bladder is free from infection.

EDWARD L. CORNELL

Gibb W. T. and Glassberg J. A. A Case of Patent Urachus with Abscess Complicating an Hypertrophied Prostate. *Hosp Bull Dept Publ Chasties N Y* 1917 1 36

The authors report a case of patent urachus which is especially interesting on account of the patient's age, the duration of the disability, the complete restoration of bladder function and the closure of the urachal sinus.

The patient a man of 4 was admitted to the hospital suffering from general abdominal pain and discomfort, complete cessation of urethral urination and passing all his urine through the umbilicus. These symptoms had set in about three years ago and had gradually increased in intensity until about

a month before the admission of the patient. Of late his urethral flow had entirely ceased so that all of his urine passed through the umbilicus. The patient's abdomen was distended, his umbilicus protruded and from it flowed constantly a cloudy fluid with a urinous odor.

A rounded mass dull on percussion and tender to pressure was found in the hypogastric region just above the symphysis. On account of the considerably enlarged prostate a small sound could be passed only with difficulty into the bladder. The catheterized urine contained large amounts of pus and a few hyaline casts and the fluid from the umbilicus showed an even larger admixture of pus than the bladder urine. Methylene blue appeared in the urine twenty minutes after the tablet had been swallowed.

After careful preparatory treatment under which the local and general symptoms had materially improved, suprapubic prostaticotomy was performed under general anesthesia. On dividing the fascia the rectus and pyramidal muscles a considerable amount of indurated tissue and adhesions were encountered over the bladder and on going a little deeper an abscess cavity was entered near the apex of the incision. This was evidently the distended urachus and contained about 60 ccm. of pus having a urinous odor.

This abscess was evacuated and carefully wiped out and an irregular diverticulum of the peritoneum which was entered in the lower angle of the wound was closed by suture. The bladder wall was very thick and adherent to the surrounding structure and it was impossible to push the peritoneum upward from its anterior surface. Through an incision into the bladder about 4 cm. long the enlarged prostate was easily enucleated and on the twelfth day after the operation the suprapubic tube was removed. The suprapubic wound closed promptly without suppuration. There was no leakage of urine through the umbilicus after the operation and the patient has been passing his urine normally and at normal intervals since the operation.

The case reported above represents the type of pathological urachus which is of the greatest interest to the genito urinary surgeon and which in most instances produces symptoms necessitating operative interference for relief on account of obstruction to the normal bladder outflow due to either prostatic hypertrophy, impervious urethral stricture, impacted calculus or obstructing new growths. By these means such an amount of bladder distention may be produced that the urine following the line of least resistance seeks another outlet, enters the patent urachus and produces untoward symptoms calling attention to the condition.

Complete urachal fistula due to hypertrophy of the prostate in the aged is one of the most infrequent types of urachal abnormality and from this viewpoint alone the report of the authors case appears to be justifiable.

M. KROTOSZYNER



Huln M Th D gn is and Treatment of  
P tiolog cal Con dition in the Ant rior Ure  
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## GENITAL ORGANS

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C n h in the male ch l d a r e d e a e a t  
l e s t n b v n d e r t l y e s f a g e n c o n t r a s t

to gonorrhoeal urethra vulva vaginitis observed in the opposite sex. As etiological factors stand out attempts at intercourse often suggested by a much older female and contagion due to foreign bodies or fabrics previously infected being introduced within the urethra. The correct recognition of male infantile gonorrhoea depends upon careful attention to inflammatory conditions of the prepuce or penis especially in the presence of a long foreskin where a phimosis exists.

When these conditions are complicated by a purulent discharge it is wise to examine carefully with a view to identifying the nature of the discharge under the microscope. Should an organism be ascertained resembling the gonococcus then cultivation on artificial media is indispensable toward proving the nature of the infection. By these means only the differential diagnosis between gonorrhoea and simple irritative urethritis is feasible which in the beginning as a rule cannot be established clinically.

In this connection the author relates in detail two interesting observations concerning true gonorrhoeal infection in four boys ranging in age between three and six years in whom the infection was due to the direct and indirect methods of contagion.

In tracing the source of infection the aid of social workers appears to be indispensable as evident from the history of the first observation where the chain of evidence was finally conclusively linked by the means.

In the care and treatment of the infected boys proper prophylactic measures including instructions to mothers as regards disposal of dressings prevention of ophthalmia diet etc play an important rôle. The therapeutic measures consist in the internal administration of balsams i.e. thuy, resor etc which in appropriate doses is borne well by the children and in local irrigations of the urethral canal by weak silver solutions protargol or nitrate of silver 1:8000 to 1:4000.

Irrigation is performed by inserting a soft rubber catheter size 10 French into the anterior urethra and gently forcing this fluid through by means of a large hand syringe. Following this a clean catheter of the same size is introduced just behind the cut-off muscle and the same solution is forced through the posterior urethra to the bladder. When the child complains of bladder fullness the catheter is removed and the child is allowed to stand and empty the bladder. By repeating this local treatment every other day with due delicacy a complete cure of the condition as evidenced by subsidence of the discharge and appearance of equally clear and sparkling urine portions may be obtained in about four weeks.

The article proves the importance of the microscopical examination of discharges in children suffering from phimosis in order by these means to clinch the diagnosis at the first visit.

M. KROTOVSKY

## MISCELLANEOUS

Edgerton N. B. The Diagnosis of Urinary Lithiasis. *J. So. Cal. M. Ass.* 1918 xiv 38.

In the diagnosis of urinary lithiasis the author insists on the following points:

1. A well taken history and complete physical examination.

Good radiographs.

3. Complete study of urinary findings kidney function etc.

4. Complete cystoscopic examination including passage of ureteral catheters and pyelography.

1. In due to stone is present in 60 per cent of cases and may be fixed radiating or referred. If the causative factor is in the kidney there is often a dull ache in the lumbar region. The pain of ureteral stone usually follows the surface markings of the course of the ureter dependent somewhat on the location in the ureter extending sometimes down into the testicle leg and foot of the same side.

Care is necessary in the differential diagnosis as confusion with a high lying appendicitis disease of the gall bladder pancreas perforating gastric ulcer mesenteric embolism tubo-ovarian disease and subdiaphragmatic abscess is easy. Stone in the intravesical portion of the ureter often gives rise to dysuria frequency meatal pain and occasionally the passage of a few drops of blood. Young has observed eminal and testicular phenomena and chronic rectal symptoms increased at the moment of evacuation. Blood is present in the urine except when the stone is not movable and smooth and regular in shape. Infection takes place in about 65 per cent of cases with the presence of pus.

2. Radiography with the passage of catheters impermeable to the X-rays and injection of thorium will often clear up a questionable diagnosis. Passage of a ureteral stone will sometimes take place after ureteral catheterization due to the resultant strong muscular contractions. H. W. PLACEMAYER.

Schapira S. W. and Spiegelberg S. L. A Preliminary Report of the Study of the Genito Urinary Tract in 600 Cases of Pulmonary Tuberculosis. *Hosp. Bull. Dept. Public Charities* N. Y. 1917 19.

The patients under consideration in this series numbered 600 there were 360 males and 240 females all adults. The cases were not unlike those generally met with in everyday practice thus explaining the more favorable findings and the considerably smaller percentage of complications in the genito urinary organs than in those of other observers. The investigations carried out according to a careful routine yielded the following results.

Seventy three of the total amount of patients or 12.1 per cent gave a history of subjective symptoms referable to the genito urinary tract i.e. nocturnal and diurnal frequency tenesmus etc. Urinalysis revealed in 38 cases albuminuria 143 cases con-

tained pus cells 3 showed casts in 6 case hama-  
turia as noted and in 1 cases a specific gravity  
of 1.010 was found. In the presence of acid  
fast bacilli in the urine only catheterized specimens  
were considered in order to guard against contamination  
of the urine with some material. In  
the 73 patients the pre-ent subject's symptoms  
referred to the genit-urinary tract a cystoscopic  
examination was made to which in the case showing  
acid fast bacilli in the catheterized bladder urine  
was added urethral catheterization where possible.

In 3 of 3 cases present in subjects with local  
symptoms tubercular lesions of the bladder the  
trigone or the ureter were concerned. In 36  
cases in nearly 100 per cent no such lesions could  
be found on close scrutiny thus demonstrating  
the apparent frequency of symptomatically reflex  
irritation. On the other hand tubercular lesions  
were found in the bladder of patients who had  
neither subjective symptoms referable to the uro-  
genital tract nor acid fast bacilli in the urine.

It was also found that several patients with  
neither demonstrable lesions in the urogenital tract  
nor subjective symptoms had tubercle bacilli in the

urine and that patients with local tubercular  
lesions in the bladder and with urinary symptoms  
showed no tubercle bacilli in the urine. The latter  
occurrences explained by the authors on the basis  
of intermittent elimination of showers of tubercle  
bacilli so that it is quite possible to get specimens  
of urine between the showers which are free of  
bacilli. Hence the former observation gives additional  
weight to the theory that the kidneys can and actu-  
ally do eliminate tubercle bacilli without themselves  
becoming infected.

Of 91 lumbar punctations with urines present-  
ing acid fast bacilli a positive result was obtained  
in 1 case or 1.1 per cent showing a comparative-  
ly very small percentage for the total number of  
cases studied in relation to as against one in 11 in  
Cunha's and one in Bernstein's statistics.

Of 171 males with tuberculosis among the  
male patients had tuberculosis of the prostate 11  
had tubercular proctitis and 16 had tubercular  
epididymitis. During the 3 cystoscopies in  
tubercular bladder 4 tubercular prostates 4  
tubercular epididymides and 1 tubercular vesicle  
1 found. M. K. OTIS, M.D.

# SURGERY OF THE EYE AND EAR

## EYE

**Roy D.** Late Infection with Enucleation Following an Operation of Iridotomy for Chronic Glaucoma *Arch Ophth* 1918 xl ii 4

A case of infection of a glaucomatous eye requiring enucleation five years after the operation of iridotomy is reported the author stating that it is the first on record

The factors contributing to the accident were

1 The eye showed some slow choroidal changes and was myopic this evidently progressing and thinning the tunics of the eyeball causing it to give way at the point of operation

No retention suture was used in the conjunctival flap which is regarded as the serious mistake in this case

3 Too large an incision was made at the sclero-corneal margin allowing too large a piece of iris to be pulled into it S S HOWE

**Mansilla G.** Sarcoma of the Right Optic Nerve (Sarcoma del nervio optico de ojo) *Segl y Ed* Madrid 191 lxv 979

A woman of sixty three years showed exophthalmia immovability of the right eye and atrophic optic neuritis These symptoms suggested a tumor of the orbital fundus The Wassermann reaction was negative Evulsion of the cavity was decided on and carried out under chloroform anaesthesia

On dissecting the lids the fingers were inserted into the orbital cavity and discovered a rounded mass behind the eye ball which occupied the orbital fundus and was adherent to the posterior pole The nerve was sectioned and the eyeball separated and the new growth and all orbital contents removed The cavity was then curetted cauterized and filled with a gauze tampon The woman recovered completely and there is no sign of recurrence

The tumor which was situated in the posterior part of the eyeball and in contact with it and the optic nerve was microscopically examined and pronounced a fibrosarcoma Pulido mentions another case in a child two years old

W A BRENNAN

**Burge W E.** The Production of Cataract *Arch Ophth* 1918 xl ii 1

A series of experiments were conducted to determine the essential cause of cataract the investigator summarizing his work in the following conclusions

1 Sodium and potassium salts act specifically on the nucleus of the lens producing nuclear opacity while calcium salts act on the cortex producing cortical opacity

The short wave lengths of the spectrum produce such a change in the cells of the lens that the calcium and sodium salts which are found to be greatly increased in human cataractous lenses can combine with the protoplasm and precipitate it thus producing an opacity

3 That ultraviolet radiation kills living cells by coagulating their protein may be seen by direct observation through the microscope during an intense exposure of unicellular organisms such as paramoecia

4 An opacity of the lens can be produced in fish living in solution of those salts found to be increased in cataractous lenses by exposing the eye of the fish to the radiation from a quartz mercury vapor burner

In looking for the cause of cataract it would seem that at least two factors should be considered the one a modification of the protein of the lens by ultraviolet radiation the other certain inorganic salts by which the modified protein can be precipitated S S HOWE

**Kirk J.** Eye Changes in Trench Nephritis *Brit Med J* 1918 i

In the spring of 1911 the author had the opportunity of examining 70 or 80 cases of war nephritis most of them young active soldiers twenty to thirty years of age There was usually severe exposure and strain and nearly all of the cases were severely acute and seriously ill Invariably there was marked retinal congestion with large pulsating veins and no patches of exudation or nerve involvement on admission

Examination of these cases again about three months after the onset of the illness classified them into three groups A B and C

Group A included 21 patients convalescent with practically no symptoms except slight anaemia and debility usually with normal urine In only 4 of these patients were retinal changes present and they were slight i.e. a few small spots of exudation slight haziness of the disc or a little oedema along the course of the veins

Group B included 20 cases Albumin was usually present often dyspnoea and some oedema Eight cases showed small exudation spots and one showed marked retinal changes

Group C included 13 cases The disease was still marked with general symptoms severe oedema much albumin and sometimes blood Four cases had very definite retinal changes and four had changes of slighter nature In none were there signs of any other complicating disease

In this series while the spots of exudation were generally in the usual situation in no case was



and sudden decompression. This compression and decompression could amount to 10 000 kilograms a square meter. The author referred to the fact that there were certain normal limits to the capacity of the auditory apparatus to withstand pressure changes and that pressures beyond the normal caused disturbances of hearing such as hyperacusis, hypoacusis or total deafness.

The men with symptoms of nerve deafness due to the effects of high explosives could be classified as those with true nerve deafness, those who had had nerve deafness and who retained the fixed idea that they could not hear, and those who were malingering. The first class alone is discussed, and in this class there are three groups of cases.

In the first group the nerve deafness was associated with damage to the conducting mechanism such as perforation of the tympanic membrane, hemorrhage into the middle ear, or infection of the middle ear. The second group comprised those cases in which there was no demonstrable lesion in the conducting mechanism. The third group was composed of those cases in which there was destruction of the cochlea and semicircular canals or their nerves.

The deafness might be partial or total in either of the first two groups, but was always total in the third. The symptoms of all three groups fell within the description of traumatic neuroses and most of the patients exhibited variable and complex symptoms aside from deafness. Such symptoms included the various common manifestations usually associated with neurasthenia or hysteria.

The author pointed out that in those cases where there were no evidences of structural injury, the re-

sult might be some microscopic damage to the structures of the internal ear. In this connection the author reported two specimens secured within six hours after death in which it was known that the patient had sustained the effects of high explosives and developed nerve deafness. The microscopical examination revealed lesions confined to the cochlear structures, closely resembling the experimental lesions made on animals by pistol shots. The membrana tentoria was found swung up against Reissner's membrane and was attached to it by a serous and cellular exudate. The organ of Corti showed marked swelling of the cell, and microscopic hemorrhages were found in the internal ear alone with evidences of an acute neuritis of the eighth nerve. No hemorrhages were found in Corti's organ. With these lesions it was found that the tapes were intact and the vestibule had not been injured.

Concerning the methods employed for improving the hearing, the best results were obtained by stimulating the nerves by means of the voice and tuning forks through resonator. Electricity was harmful. No results were obtained where the internal ear was destroyed.

As a preventive measure the author recommends the Wilson-Michelson hard rubber device which permitted the hearing of all normal sounds but which also closed tightly in response to loud noises and protected the ear against injury by detonations. This device was smaller than the Malloch-Armstrong protector and did not irritate the canal or cause any discomfort to the wearer. Cotton plugs and wax or cotton impregnated with petrolatum were condemned. Otto M. Rott.

# BIBLIOGRAPHY of CURRENT LITERATURE

## GENERAL SURGLRY—SURGICAL TECHNIQUE

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P s m d f th rs Bull t m m Soc d h d  
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I f f k d f t th p vres s f u d  
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ff t L O S k R l d l h sp  
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### Anæst et es

A æ th t k T L Co TAIN J Am In t  
H mœ l 9 8 99  
Anæ th t d th t R W H R N A B R o  
M d J A t l 9 8 43  
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r y r m f b e r s æ th f f k æ th  
f h m s k a g n l cl o T S M A N V  
J Ph m l & Exp Th r p 9 8 9 69

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S m b r v t s o t h s y f t h e t h y r d g l d  
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 efer t t l g y f t h y d h y p i l B N  
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 Tw f t h y r t m y p j t l n l r y n p

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 36  
 R tr t l g t W GREEN A Su g  
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 El t ard og phi b t i t c g t E B  
 KRUM H R Am J M S 98 l 75  
 Ope t t e m t f g t e W I TERRY N rth  
 w f M d 98 v [513]

## SURGERY OF THE CHEST

## Chest Wall and Breast

P g d d l t o f h t u d s g t l  
 t t m t B R H M B l l t m e m S d h  
 d P 98 l 5  
 W g r y f t h t A L LOCK a d J A  
 NIX B t M J 98 45 [514]  
 T t m t f d f t h t h p l f  
 to f t d h e m t h a W H T C I N B r t M J [515]  
 98 of  
 Th c f i t t f a e d m f t h p p l m b the  
 l t f i t t d v C M B I d I  
 M u R D I d m d t h p t P 98  
 l 49  
 T b t t m t o c h d m a d l f d  
 f i b m H H R R v d E S A d  
 g y t d b t P 98 l 4  
 M m m a r v y t d o m f t h b t H R  
 m u R b d l t d t h e p l 98  
 u 83  
 Ep t h h m f t h b t m l t d f i l f m  
 d g H CHAPU B l l t m e m S d  
 h d P 98 l 9  
 B t a b d t h t b y f l i o m d a  
 age H C u r B l l A d d m d P 98 l  
 85  
 W d f t h t h r a w J R E S M A N M d  
 R 98 65 [516]  
 B l l t t g t e t h d h t t t l p a d  
 l d g d t t h t l f f t h s c t p P  
 M t B l l t m m S o c d h d P 98  
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 S m t m k o t h e t F L O A D d  
 F R t R g d h t d t h p P 98  
 xx 89  
 Th l u f m t f y l l d f m d l l  
 i t t h o p W C R D d M E G  
 B t M J 98 73  
 St d y f t t l p m t h E E G T R R  
 Prog d l l M d n d 98 4  
 A p t m y t t h t a t m t f n f c t d h e m o  
 t h r a J F D B S v B t M J 98 48 [517]  
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 S p h t l t f p l C S A N T I d V I G O R  
 P m d 98 u 8  
 P l t m y d l l f p l n f t d  
 h e m o t h r a l T r t B l l t m m S o c d h u  
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 Ch m p y m T B S N L I l d M J  
 98 4  
 Th m o d t t m t f m p y m b y t p t  
 R A S E B t M J 98 98 [17]  
 A t m d t l m p h y s m f t r a m t m  
 I C A T I I B l l t m e m S o c d h d P 98  
 l 4 [517]  
 A s e f t m y t p l m d t t B S A B L  
 I n d M C 98 l

R m l f t p j c t l f r m t h t n r  
 m d t m t h t t o m t h p l u r l d m e J L E  
 G R N D P m d P 98 v 93

## Trachea and Lungs

F b p p l m f t c h m a l b y e t n l p e a  
 t u W M r L I G A N P o c R o y S M e d  
 98 S t l l 5  
 F r t f l m f t h t h g e t d y p o e  
 p e t c W M r A N P r o c R y S o c  
 M e d 98 S t L r y n g l 4  
 D i g f t t m t f l r y n t a c h l d s  
 G u P m d P 98 xxv 97  
 C l t d l y l d t c h e a l p g s  
 C A d N d m d A k S t c k h o l m 97 i  
 k u r g N  
 T r p l t t f t h t h W C B L E B u l l  
 J h H p k H p 98 3  
 C o p p e b d t h l f t f b o h R M c  
 K I N N L r y g p e 98 80  
 T u b l b h l g l d F S C H I M C L O W  
 H p T d K p l n h 98 l 6  
 T r t m t f f g n b o d t h l e r p g e s  
 d t h o j h g t d t m t h o d H T E  
 L t L j 98 83 [18]  
 T t m t f t b l l a b c s w t h p  
 m t h r a p t f t W D T E K S B U R Y [518]  
 A m A 98 l 93  
 L i g h t d d p l m t b l N A T H A N  
 B l l t m m S o c m d d h y p P 97 l 33  
 T f h l t d c y t h p l m a r y l o c t o  
 A C C o m d L m 98 xv 7  
 S y m p t m a t t l t A u M e d R 98  
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 F p m y t t f p l m o a r y p j c t l  
 D A I R B l l t m e m S d c h u r d e P 98  
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 E t t f h l l f g m n t f m t h l g H L  
 R O C H E J d m d d B r d 98 l x 42  
 W j r n f t h l M P e R e v g d p a t h  
 d e g u P a 97 N 5 [519]  
 W d f t l l g s t h p l l p p u t n D E S  
 M A R B l l t m m S d h d P 1918 xli  
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 I t p l m r y d f m p r j e c t l C G  
 C M S N A M J 98 36

## Heart and Vascular System

Ch d t m y f y s t h a t h d b l e d i l t a  
 t t h r h t h t P D e r B l l t m e m S o c d e  
 c h d P 98 l x 5  
 P r i d a l k o k W P H M U N D v B r t M J  
 98 74  
 E t t f b u l l t f m l l f t h h r t H M A N V  
 B l l A d d e m e d P 98 l x x x 84

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P t t t s e u t d r o g t c t n L  
 U r t t g l m d M d r d 9 8 l  
 D h i a t f t h d d m f L z R d m d y  
 r u j d l f b n a 9 8 47  
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 O R C 6 m d L m 9 8 x x  
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 L L J H A h l t M d 9 8 9  
 I n t t t x m f h h b s t r u t n R A K E r y  
 J A m M A 8 l 5 [24]  
 I n t l b t t o p m t l s t d y B  
 B H W S H z r a d J E W T E N R  
 A n s h l h l o 8 l  
 A t t t l b t t b y g l l t B G O T N  
 J f d m d d e B d 9 8 l 5  
 C l t t l d l t t d t t m t L  
 Z N I e m d c r u d B a l o 7 x 466  
 I n t t l l b y b l r y l u l V L A R J  
 d m j l B d 9 8 l 49  
 R t n d t t m t f t n l d e r t u l  
 D R R s g (y & O l t 9 8 x v  
 S m k t p t H W G M K E N E  
 d W H B A L t l d 9 8 5 [524]

U f h y p l t t t f t t l p l y s  
 A t t t p p e d t t p e t K I R M I B l l  
 d d m d P o 8 l 8  
 M e m l h f t h p r m t r a t r y w t h  
 t t l g g G u t f d M R E U B u l l t m e m  
 S o d l d l 9 8 l  
 M y m f t h t t f C H R I H R N Y M J  
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 S e g m t a l l y m p m f t h j j m D r E d  
 S p A h m e d b l 9 8 l 5  
 T h d t b t f f t t h a p p d C M S M I T H  
 A s g h l 9 8 l v  
 A n l s e f m a l p t o f t h p t d H T  
 M J A m M A 9 8 l 3 [525]  
 A p p J t d t h 6 l p a t t N B I R E N D  
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 C h t p d t d l d t H  
 B d f f v d m e d A k S t o k h l m 9 8  
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 A c a f h p p e d t w t h t l p d  
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 A p p e d t t r L V R D G h b d  
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 9 8 l 7  
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 t t a l I H J N a m J O b t N Y 9 8 l e  
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 d t l 9 7 4  
 A t d t l t f t h l t d t v  
 J F I s g C y n & O b t 9 8 t v  
 7  
 A f H r s h p r u H A u d u p K  
 m d d l S s e R m 9 8 x 38  
 L o l i f e f t f t a l c a W H C R I P  
 B r i t M J 9 8 3  
 R t f b o l t t o s m d j t S  
 S T I L L v A S I h l 9 8 l x v 89

Acc d t d m p h t o f f i s t l o p t o  
 C J D u M d k e e 9 8 c i 280

### L e r Pancreas and Spleen

P m r y h n e e r l d O J S U E d M  
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 H y d t d p j l m y s t f t h l e M H V E G A S  
 N Y M J 9 8 c 34  
 P t p t t a t m e t f h y d t d c y s t s p e l l y o f  
 t h e l A A l r R l d l o s h p M d d  
 19 8 8  
 L h p d l t d r n g i o m f t h l e r  
 a l d t f l u g b e t d f i c l t y I  
 C R u A m J O l t N Y 9 8 l x v 73  
 l t l h a m t m f l i y p h l P  
 C r F l l t m m S m d h o p d e P a 9 8  
 v l  
 D l p m t f h a m r h o i d e f l w i n j r y  
 t h l E M v F r C d M A s s J 9 8  
 9  
 E m u t i f g l l t b y t h e A y J F F I S C H E R  
 N J m d A k S t k b l m 19 8 K r g N  
 A l l l t o A P I N D M d R R  
 9 8 8  
 S t d t h f t f t h g a l l b l d d d e o r m a l  
 d b m l d t J B R O N o d m d A r k  
 S t o k h l m 9 8 K g N o  
 S m b t g l b l d d r d e s d t  
 g l t t m t M B E R Med P e c 9 8 [526]  
 4  
 C h l v t m t y p h d p e t r y  
 N l C d p d c l n M d o 9 7  
 33  
 W J d i l h l b l d d J L A M E R  
 N Y M J 9 8 44  
 P l l r t l h d y p p a d t d m  
 C A I R N Y M J 9 8 34  
 B l l t h L J r r G a m d d C a c  
 9 8 3  
 A p l f m t h h p e t s t h b h a r y  
 t t D N E t W M J o x 335  
 T h d c f f t f t h t s p l F  
 N u J A m M A 9 8 l 8 [526]  
 T u m t s m f t h p l m P r c o v B l l g d  
 t h P r o l o  
 A t t b l p l t h e m s w t h l g d p l  
 V a q d W F L v M d C l N A m [527]  
 9 7 4 u d f t h p l J F L L R d e h [527]  
 P o m l t a t f l f t k d y a n d s p l H L  
 R o t r J d m d d e B d 9 8 l x 4  
 S p l t m y f p l m g l y f S H A V A n n  
 S g I h l 9 8 l 43  
 E f f t f p l t m y J M H r z o A S g  
 P h l 9 8 l x 33

### M l s H a n e o u

T h a t b d m e J B D v M d R 9 8  
 c 47  
 P e t r a t i n g u h t e d f t h b d m m n r h  
 p r a c t A R W L E R S B r i t M J 9 8 75  
 T h o m b o p h l b t f t h f r i a m p h  
 t h l l S A B L A U N E R N Y M J 9 8  
 c v n 355

## SURGERY OF THE EXTREMITIES

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General Conditions Commonly Found  
in the Extremities

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t b e u l i s C M R o s e r T e x a S t J M d 19 8  
w 3  
T r t m t f w o d o f t h k e e j t f o m p e c t a l s  
n f C G C u m o A S g P h i l a o 8  
l v 7 [32]  
T h t m t f l l k m s d e J L u g o i r  
P o s m e d P 9 8 x v i 6  
O t o y n t h s g r y R L F u r P r i  
h u r g 9 7 8 3 4 [533]  
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w d C D u j a r i e r B l l t m e m S o d c h r d  
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C t i g g r f t e t f b n y k y l o  
H D E N I E R B u l l t m m S o d c h d e P a r  
9 7 l 0 5 [534]  
E n m e s t n f t h m l h d b y t e r s e  
f l l w d b y m y h p h y R B o v e u P r i  
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b p l t R L R i n B l l t m e m S o c d h i  
d P 9 7 l u 2 7 [534]  
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A t o p l t y b y t h l t n m t h o d f l g c i c a t r i f  
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r p r f l s f s b s t c e H D  
C E E R e b l l t m m S d c h u d P a r 9 7 l  
2 8 8 [534]  
F g f f t h p a t l l C A R D S l m e d  
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### Orthopedics in General

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B u r d c P O J r J A m I s t H o m e o p  
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J E F u A S g P h i 9 8 l 1 6 3  
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r a b l p l y A J G T T e a d C C C h a t t e r  
M t a M d 9 8 1 [535]  
B f t d f i f t G H R G o s m a n M J  
S g 9 8 l 5 6 [535]  
F l t f t d t p o s D H S e a r t M d  
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A m p t a t f t f i c l l u m b s p o t f r m t h  
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B k t b l w f t h p e s t t u a t f o m  
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P o M d J A t l 9 8 8  
S m f t h l m i t t f m l t a r y t h o p e d c s g e r y  
M O H i M d J A u t l 9 7 4 5

### SURGERY OF THE SPINAL COLUMN AND CORD

T s f s p d y l R H S r v J d r a d l  
P a 9 7 6 7 3 [535]  
N e n t b e c l i s o f t h p i n e J A H o v J A n n  
S u g P h i 9 8 l x v i 6  
A n t m o c k c a l t d y o f l m b a p u t u f y  
R o g R v o R d e n m e d B c l 9 7  
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T h e c m p l i c t s f s p l c d u n d G R l s s  
P o r e m e d P 9 8 p 7 3  
C h l f r m f e r c l c o r d m m t o n b y  
m i s i l H C l u n d J L h e r m i t t R d m e d  
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I j n f t h p u n l c o d w i t h r p t f g u s h t  
i j r y f l m o r d t h f r t h r v l e t b a n d s  
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C t r i b u t t h e t d y o f d f c t s i d f f e t u f  
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J d d l P 9 7 6 7 3 [536]  
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I 9 8 p 6  
I t r p t a t o n f l u m b s a c l b c k a h e i n w m  
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T h o b r v t i t h e g r y f d f m i t s o f  
t h p n C S V e A b l T x a S t J M d 9 8  
x 3 6

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## GENITO URINARY SURGERY

### Kidney nd U ter

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## Eye

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 M t d t C F S v Y M J 9 8 c  
 63 [570]  
 Th ff t f h h vpl th J G WIL N  
 N Y M J 9 8 3 [570]

## SURGERY OF THE NOSE THROAT AND MOUTH

## Nose

V f t l t f b m l typ l R R  
 cl gle l h p M d d o 8  
 A f mpy m f th l f t th m d d f tals  
 w th pe f t f l f b t F R Ro r s  
 d f J H r l L r y p 9 8 v 93  
 N ph r y n l f b m m d s m t  
 cha L J ( t L r y g s i 9 8 u  
 06  
 A trum t f m k d g n th fl  
 of th b t p k f llo t f  
 pt m L ( oo L r y n p 9 8 u  
 A th py th t tm t f f t d h u  
 A C CLA M d f t m h tly 9 8 l 43  
 I th m d d t b n t b e t l L C KIVREN  
 J Okl h m St M A 9 8 65  
 l sal p th u b v t b g t e A E R A  
 Re m d d l S R m 9 xxxvi 34

## Throat

V u t gun J H HE TER Am J S g 9 8  
 xxi 6  
 Vin e t an H A BAR T M d Clin v Am  
 9 8 90

V f n d l f t b m us fl p v B  
 F H R L r y n p 9 8 x 1 9  
 L p th l m f l f t l o m al d co r y G  
 C R d l r y l P 9 8  
 T l l t m y b m d n t f th Sl d t h n q  
 E F v m J Okl h m M A 9 8 5  
 P l t f l l t m y t tm t f y t m dis  
 D W I l y p 9 8 v 6  
 A m p l t t f th l y I W D v d  
 J B C L r y p 9 8 74  
 F r t t f h p gl d f to  
 ph r y n l t s c f t b c l ngu N P TTERS v  
 P c I v oc M f 9 8 S t L r y g l 3  
 B h t t t l d g t ph r y v  
 J D v S g Ph l 9 8 l 4

## Mouth

O l f t d th l t t y t m c d d  
 W H C L E J l l d M A 9 8 3  
 M gl l y m h g m p r t f c s R D  
 S E d W H c e L r y n s c p e v m 99  
 R l t f th t th d w t g l m d i  
 K H T M d Cl v Am 9 8 69  
 P th l r y f l l l d d i s e d d oot nd  
 K H T u D t l C m 9 8 l 3

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